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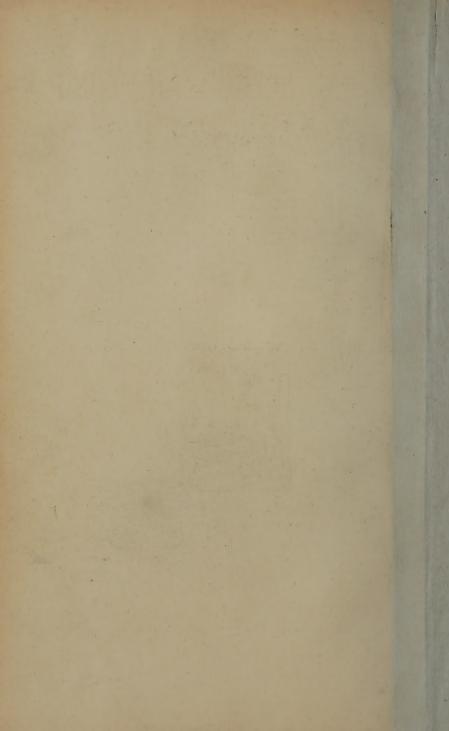
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HEALTH, SPEECH, AND SONG



HEALTH, SPEECH, AND SONG

A PRACTICAL GUIDE TO VOICE-PRODUCTION

BY

JUTTA BELL-RANSKE

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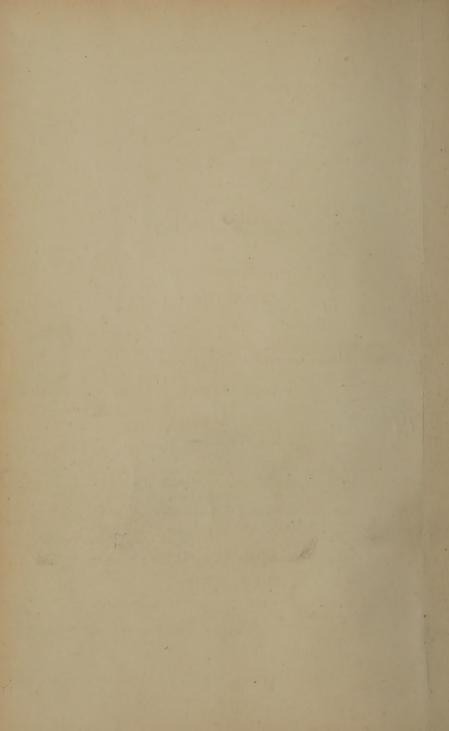
My Little Tullik

WHO

IN MY TEACHING OF HER
GUIDED ME
TO THE GREATER PART
OF MY KNOWLEDGE
THIS BOOK

IS

LOVINGLY DEDICATED



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HEALTH, SPEECH, AND SONG.

INTRODUCTION

In this little book on the voice, which I intend to make as short and concise as possible, it is my endeavour to throw light on some of the apparent contradictions in teaching which are daily making the study of voice-production more difficult, and I hope to put forward facts in such a clear manner that I may be of practical help to some of those who are searching for the truth.

I wish first of all to impress upon teachers and students alike, that voice-production is a science which must be dealt with from a practical basis: that the vocal organ is an instrument, and that its mechanism must be understood before we can use the voice with economy; for through such knowledge alone shall we learn how to develop it to its full power.

If the voice were studied in such a manner,

half the trickeries used in teaching and the delusions springing from false ideas would of necessity fall to the ground.

To the young, enthusiastic student this scientific and practical mode of studying song—almost the greatest of all arts—may appear tedious, but it is nevertheless the only medium through which the organ can be got under control.

An artistic temperament is more often than not a hindrance during the elementary stages of study, for no dramatic talent can be given freedom, or poetic temperament wings, until the agencies which have to be employed, are got under control.

Learn therefore foremost what these agencies are! The study of Physiology and Psychology must not be confused, and though both are necessary to the complete development of an artist, each must come in its proper place. It is first of all essential that we should know how nature works before we can have a sound foundation whereon to base our principles of art.

Like all those who have striven to solve a problem, I have wandered far afield, searching in every direction, and have for periods believed and supported many fallacies. Hence I have, through various stages of my development, stated apparently contradictory theories with which I might be confronted to-day, but which I would meet in a very frank spirit by acknowledging my mistake in having believed that each stage as it unravelled itself to me, was the final one.

We wander in a circle and sooner or later must consider the opposite extremity of our terminating point.

We have but two means of arriving at knowledge: by practical experiment, and by argument. Wherefore it is much to be regretted that controversies on voice-production have become almost a personal matter, and that although the desirability of free discussion is admitted by all, so few are willing to enter in upon it. Such discussion between those who have thought seriously on this subject would be of great benefit, however much at variance their opinions might appear, for "Nothing tends more to the corruption of science than to suffer it to stagnate."

Besides, some of these opinions are sure to be part of, if not the whole truth: and, if right, we are, by discouraging such controversies, depriving the public "of the opportunity of exchanging error for truth: if wrong, it loses what is almost as great a benefit, the clearer perception and livelier impression of truth produced by its collision with error."

CHAPTER I

THE VOCAL ORGAN

THE first thing in voice-production is to realise that the vocal organ is an instrument, and of what elements it consists.

There is hardly an instrument to which it has not been compared, from a trombone to a spinet, speculations of interest but of comparatively small importance, because being the most perfect, the most wonderfully constructed of all, it stands unrivalled.

The only comparison with which I still have much sympathy, and to which I will come back in the further development of my subject, was Ferrein's, who likened the vocal organ to a violin, the vocal cords being the strings, the current of air the bow, and the diaphragm muscle, the hand that guides this bow.

I feel as a singer that this comparison tallies closely with the *sensation* of song, and though

this does not represent knowledge, it may give us material for knowledge.

Most physiologists agree that the vocal organ is a flexible reed-instrument, the lungs being the bellows, the vocal lips or cords the reeds, and the throat, the pharynx, the mouth and the nasal cavities, the resonator.

We have, therefore, an instrument consisting of three elements which must be studied separately, in order that they may be clearly understood and the function of each thoroughly grasped; for then alone shall we be able to know how they work in concord one with the other.

In the separate study of these elements, and in getting them systematically under control, lies the secret of voice-production.

The old Italians knew this, and let their pupils go through a regular school of training in which they passed from the hands of one master to another, each training one element only that the development of the voice might be systematic and complete. All the various and apparently contradictory schools that surround us now are also but small parts of one great whole; each master again treats one of the elements only, but believes the whole truth of voice-production to consist in the

knowledge he has obtained of that one element, and because a particular treatment benefitted him he is convinced that the truth of voiceproduction lies in the special training which cured his individual faults and that others must necessarily benefit by the same treatment. But unfortunately what is good for one need not of necessity be good for the other. Hence it follows that, when one great singer steps forward declaring the action of song to be regulated entirely by the position of the larynx, another, that it is regulated entirely by the control of breath, a third, that it is regulated entirely by the soft palate and uvula or other parts of the resonator, they are merely pointing out to us their personal difficulties in training, which simply ought to show us that their particular faults had lain in one of these elements. Instead, therefore, of different letting this confuse us, let us realise by it the necessity of an intimate knowledge of the whole organ, that we may learn to understand where the fault of each individual lies, for only through such knowledge can we remedy the evil

The general belief that these singers are giving contradictory schools to the world is a fallacy which would be obvious if their statements were analysed by those who have a perfect understanding of the vocal organ. Singing teachers should, like doctors, have a thorough knowledge of the construction of the organ they profess to treat, and ought furthermore before they practise on the public to have had practical experience of the workings of the organ.

As singing stands to-day it is divided into many different schools, the supporters of each doing their best to abuse the others, and the position is made doubly difficult because each holds a part of the truth. So many parties of war, headed by well-meaning, but one-sided leaders!

All these various schools of song can be classified under the four following heads:—

- (1) The School of three registers.
- (2) The Larynx School.
- (3) The Pharynx School.
- (4) The Resonance School.

the latter including the school in which speech is said to control song. I hope to be able to prove that these schools are but smaller parts of one great whole. Each has its excellent point, but not one of them is complete as a school dependent upon itself. Sometimes the teachers of these opposite schools succeed with

a pupil, which convinces each in turn of the infallibility of their methods, but these comparatively rare successes spring simply from the fact that a few students were fortunate enough to go to the master who happened to treat the particular fault which hindered their development.

During the nine years I went from master to master, studying all these schools, I invariably heard and saw the same pathetic story. Each master had one or two successful pupils whilst the rest failed, and many of them had excellent voices and gave both time and thought to their study.

Why did they fail?

Because they over-worked one of the elements, whilst they neglected *the one* which stood most in need of attention.

Hence, as I say at the beginning of this chapter, it is foremost necessary to realize that the vocal organ is an instrument and of what elements it consists.

I will in the next three chapters treat these elements separately and endeavour to make the function of each as clear as possible, hoping in my further development to prove equally clearly how they work in concord one with the other.

I will, for reasons which I will explain afterwards, treat them in the following order:—

Firstly: The Motor Element—breath.

Secondly: The Resonator. Thirdly: The Organ itself.

CHAPTER II

THE MOTOR ELEMENT—BREATH

"Learn to breathe correctly and your life may be song."

SINCE I have stated that the vocal instrument consists of three elements, it might at first appear that each element must be of equal importance. And if the motor element which drives the organ were given us for the sole purpose of creating song, it would be so, but this element has a far more important function, being the element of life itself: hence song becomes only an overflow of life.

Life is breath.

Voice-production must therefore prove, from its fundamental basis, to be a very serious and important study, since its motor element springs from our life-current,—and we ought to realise at once that the correct development of either must strengthen both. The first important step towards voice-production is consequently to learn to breathe correctly, that is, to understand the action of our lungs and how to control it. It stands to reason that singing must either strengthen or weaken our very life, for if we do not know how to control the motor element in such a manner that we have plenty of air wherewith to create song, we are drawing on our life-current to sing, thereby weakening the whole system which song ought to have strengthened.

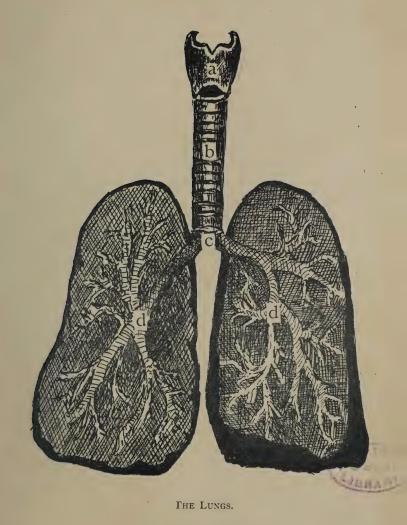
The old Italians recognised fully the importance of breathing and gave years of study to it, until they went to the extreme of believing that correct breathing was the whole truth.

"Chi sa respirare sa cantare."

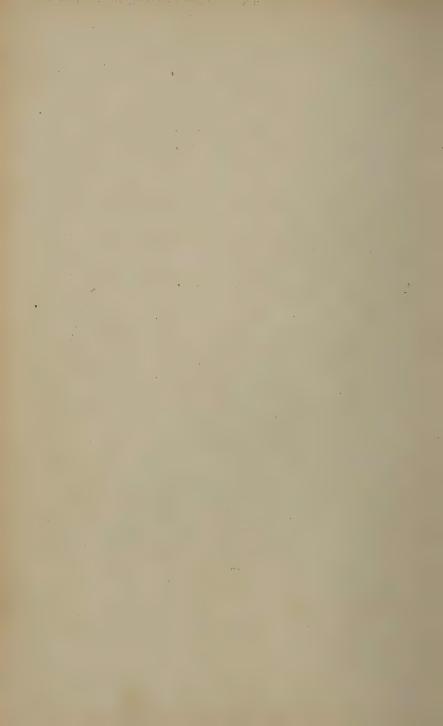
To know how to breathe correctly is exactly one-third of the truth of voice-production, but the first to be considered, because however glorious an organ one has, it would be futile to try to use it until the element which drives it is under control.

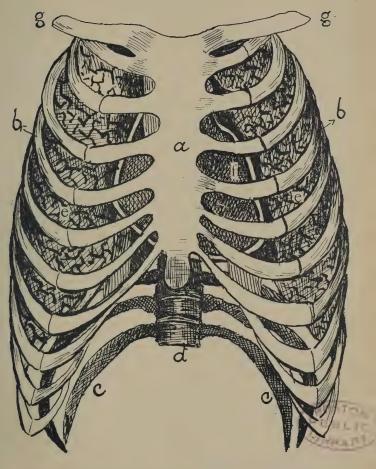
It is therefore necessary to understand the shape, position and regulation of the respiratory organs.

The lungs, in which the air is stored, lie in the chest-box and their shape is of great importance, broad at the base, narrow at the top



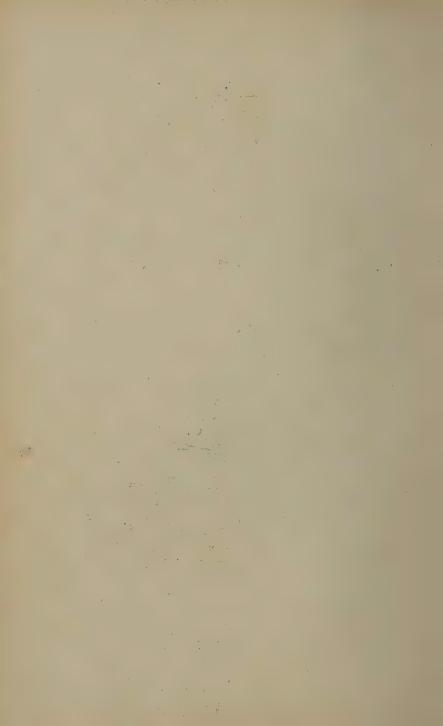
- a The larynx or voice-box.
 b The trachea or windpipe.
 c The bronchi.
 d The bronchial tubes.

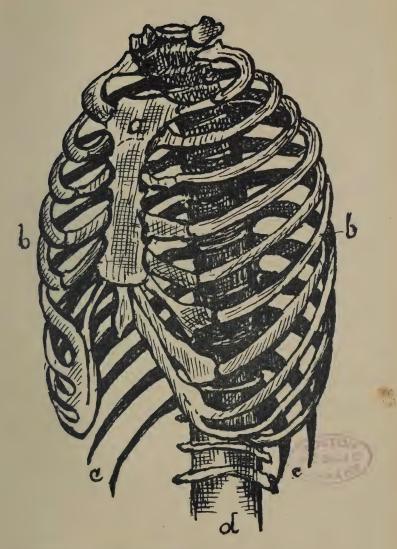




THE CHEST FRAME, SHOWING THE POSITION OF THE LUNGS AND HEART.

- a The breastbone or sternum. a The breastbone or sternum.
 b The ribs.
 c The floating ribs.
 d The spine.
 e The lungs.
 f The heart.
 g The collarbone or clavicle.





After Huxley. The Framework of the Chest.

- a The breast bone.b The ribs.c The floating ribs.d The spine.



like a cone. They are two separate bodies, composed of spongy substance, consisting of divisions called lobes, these lobes are divided into lobules, and the lobules into minute aircells.

The lungs are enclosed in double bags (the pleuræ) and are attached to the wind pipe by two tubes called the bronchi, which are again divided into the bronchial tubes through which the air is carried to the lungs.

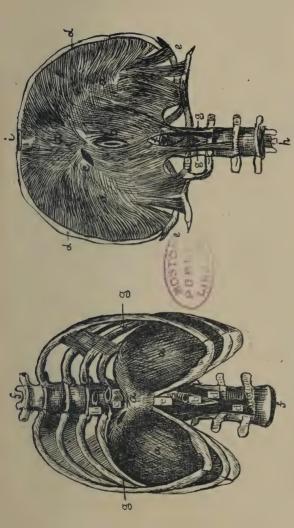
The windpipe is a flexible pipe consisting of C shaped rings covered by mucous membrane and has the power of both contracting and expanding. This action is of great importance to speech and song as the vocal organ is situated upon the upper ring of the windpipe, and its position consequently is under the immediate control of the windpipe.

The lungs fit exactly into the framework of the chest, filling almost the whole space, except for the small amount that is occupied by the blood-vessels and the heart.

It is next of much importance to understand the framework of the chest, to show how nature provides the means of expansion of the lungs an expansion too rarely used. The framework consists of the spine at the back, the breast-bone and collar-bones in front, and twelve ribs, of which ten are attached as by a hinge to the spine and breast-bone whilst the two lowest ribs on each side, termed the floating ribs, are attached from the spine to the outer rim of the diaphragm, or midriff, which divides the chest from the abdomen. Upwards the framework extends to the neck.

The diaphragm is the most important muscle in the human body, as it controls the act of respiration, and is therefore the keeper of life. It has numerous fibres spreading in various directions over the ribs and two very strong masses, called the pillars of the midriff, attached to the spine. When these muscular fibres contract they flatten the diaphgram and increase the expansion of the chest at the expense of the abdomen. As this expansion of the framework takes place, the lungs follow the movement of the ribs, and air rushes in to fill the vacuum. through the mouth or nose at will. In the understanding of the control of the diaphragm lies the greater part of the knowledge necessary for correct breathing, the remaining part lies in the understanding of correct inhalation which will be discussed in other chapters.

In order to make the action of the diaphragm clear I will explain in detail what takes place in the act of properly controlling the breath.



FRONT VIEW OF THE DIAPHRAGM.

The diaphragm.

The aorta or great artery. The gullet or œsophagus.

The pillars of the diaphragm.

The lower projecting end of the breastbone or sternum. The spine.

The ribs.

THE DIAPHRAGM

the lower ribs and breastbone are thrown upward, exposing To expose and stretch the lower surface of the diaphragm the four upward vertebræ or joints of the spine.

a The diaphragm.

The gullet or œsophagus.

The aperture for the vena cava. The ribs.

The aorta or the great artery. The pillars of the diaphragm, The floating ribs.

Ensiform appendix of the breastbone The spine.



The diaphragm flattens, that is, is drawn down. The chest is expanded upwards, downwards and outwards, at the expense of the abdomen. The floating ribs, which are attached to the outer rim of the diaphragm, are pressed forward and outwards, thereby greatly expanding the bases of the lungs, an act which constitutes rib or costal breathing.

When the air is being exhaled the diaphragm arches up as before, the ribs fall in, and the abdomen relaxes.

For singing the air should be drawn in deeply and fully, and the singer should practise the power of laying in and controlling a great deal of complementary air.

We have four different kinds of air in our lungs:—

The residual air, which cannot be drawn from the lungs.

The supplemental air, which remains after ordinary exhaling.

The tidal air, which is the air over and above that which is used in gentle breathing.

And *complementary air*, which is the deepest mode of breathing.

It is this latter air which we should mostly use to create song.

Many still term this mode of breathing forced,

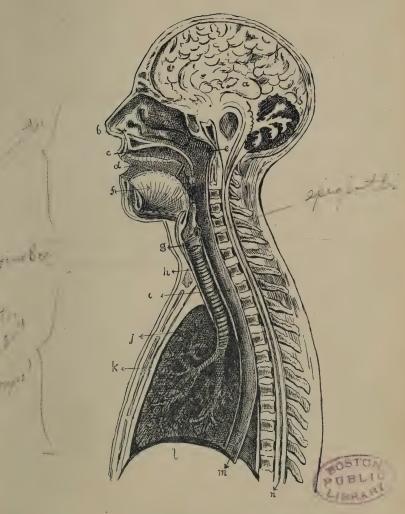
believing it to be too great a strain on the respiratory organs, but that is not the case if it is developed by degrees and its control is understood. The pressure of any great force must be gradual, or it can easily become injurious. The beginning of correct breathing is often even painful and fatiguing, as muscles are made to act which have hitherto remained almost dormant. Diaphragm or costal breathing was the only mode of breathing recognized in the old Italian School, and I am glad to say that many are returning to the belief in its infallibility, though many acknowledge that, from a technical point, they do not understand why this mode of breathing is superior.

Surely the answer is simple!

It gives the greatest store of air, therefore of life. It permits of the perfect expansion of the frame-work of the chest, therefore of the greatest expansion of the lungs.

I cannot understand how those who have studied Physiology can doubt that this mode of breathing is correct, for does it not stand to reason that that which gives us the greatest store of life is of necessity the greatest supporter of life?

We have still many teachers and even medical men who advocate abdominal breathing,



THE CONNECTION OF THE ELEMENTS.

- a The brain.
- b The air passage.

 The hard and soft palate.

 d The food passage.

 The Eustachian tube.

 f The tongue.

 g The larynx.

- h The windpipe.
 i The gullet or œsophagus.
 j The lungs.
 k The bronchi.

- 1 The diaphragm.
- _m The gullet.
 - n The spine.



which by its action prevents full costal expansion, hence, lessens our vital force. In abdominal breathing the diaphragm arches upwards, whilst the floating ribs fall back, permitting of little or no expansion at the broad and most important part of the lungs; at their bases. It is in this manner of respiration that wrong breathing is encouraged, as the air is inclined to be forced too high up into the lungs, developing clavicular or sternal respiration. There can be little or no doubt that this mode of breathing sprang from the fact that it is of less physical effort, since there is less need for tension or muscular grip.

Physical strength consists however in tension.

Would any of us relax our muscles if our strength were called upon? Certainly not. We would involuntarily turn to our vital force for support by tensioning the diaphragm and expanding the chest. Unfortunately this expansion in women is often prevented by tight garments. It is not that I condemn corsets, far from it, I advocate them, but they should be made in such a manner that they give support in the right places. Women have still greater costal expansion than men, wherefore they should be given even greater

freedom across *this* part of the body. The tight lacing of women does an enormous amount of harm, as in cramping their breathing they interfere with the action of the heart and bloodvessels, both being under the immediate influence of the breath.

Hence it is impossible to exaggerate the importance of correct breathing, not because it is the element of song, but because it is the element of life. The knowledge of it should be taught at all schools, that we might not be permitted to grow up so pitifully ignorant of our vital force.

CHAPTER III

THE RESONATOR

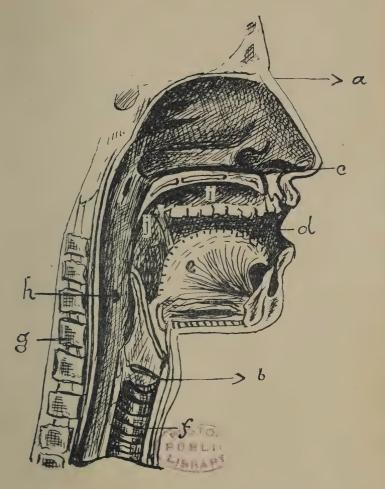
IF we analyse the word "resonance" we shall find it to mean that a second body is set vibrating through the means of a first body; in other words that it is an effect, not a cause. It seems therefore inconsistent that I should treat the Resonator before I treat the Organ itself, as from its name it appears to be but a subservient force.

I have however strong reason for treating it first as I think the importance of the resonator much underrated. Besides, I am anxious to develop my subject of song consistently with the understanding of perfect health, as without that we should have but little heart and strength to sing.

The Resonator extends upwards from the vocal cords, and consists of the vestibules of the larynx, the throat, the pharynx, the nasal cavities

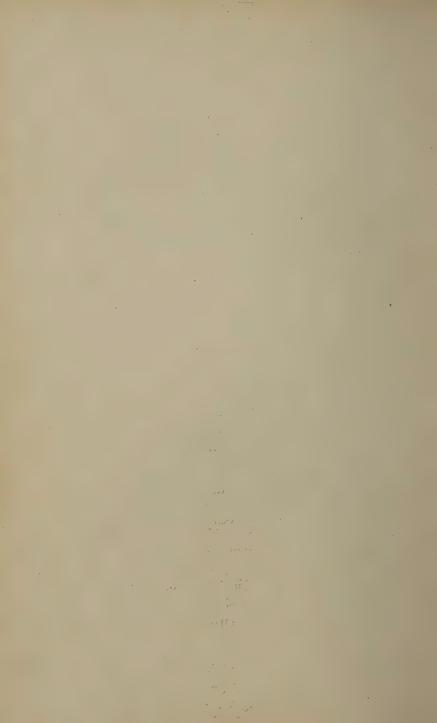
and the mouth, the latter being the articulating cavity which lies at the terminating front portion of the Resonator, and which through the agency of the tongue and lips forms the sound into speech. The nasal cavities are divided from the mouth by the hard and soft palate, terminating in the uvula from which extend the pillars of the fauces connected to the larynx and tongue.

My reasons for discussing this element before the organ itself are threefold: first, because it is the element which supplies the air to our lungs: the nose being the natural inhaler and by its wonderful construction, the purifier, the regulator and the filter of the air: a fact too rarely recognized. It would simplify singing greatly if it were, for the throat and pharynx, in fact the whole resonator would be in a far healthier condition, and consequently much more easily got under control, if strengthened by the soothing effect of air, purified, moistened, and warmed to its right temperature by being inhaled through the nose. It is strange that such a simple and important fact should not be more universally known and understood. The closing of the nasal passage springs greatly from the ignorance of it, as do in most cases swollen glands, enlarged tonsils, relaxed uvulas



THE RESONATOR (defined by the arrows).

- a The extremity of the nasal cavities.
- b The larynx.
 c The air passage.
 d The food passage.
- e The tongue.
- f The windpipe.
- i The while The gullet or esophagus.
 i The hard and soft palate.
 j The uvula.



and sore throats. And it stands to reason. Because the air drawn in through the mouth travels through all these delicate parts and into the lungs in all sorts of temperatures but the right one, and often full of impurities. Wrong breathing, therefore, involves an enormous amount of unnecessary trouble and work both in life and in song.

From this it might appear that the Italians were right after all in saying that in correct breathing lies the solution of the secret of song; but it was because they trusted entirely to this that they lost the art. Perfect capacity for inhaling and controlling the air gives us *health*, therefore a healthy organ and facility for speech or song; but this knowledge will not overcome the difficulties of regulating and adjusting the various muscles or organs of our Resonator, such as the soft palate, the tongue or the lips.

The Resonator is often closed in song by the root of the tongue—the unruly member—and muffled in its resonance by the soft palate—the bête noire—falling like a curtain over the pharynx, giving a nasal quality to the tone by making the air escape through the nose, as the fall of the soft palate has partly blocked the passage into the mouth.

The difficulty of controlling and understand-

ing these muscles is my second reason for treating the Resonator before I treat the organ itself, as it is of little use to create song before the passage through which it passes and obtains its sonority, is opened.

The importance of resonance in voice-production is very great, and it would be almost hopeless to begin teaching the attack of tone itself until this tube is somewhat understood. We must realise it as a separate element and not confuse its agencies. The Resonator is not the creator of tone, but the intensifier of tone: it gives effect and sonority to the tone, and begins its work from where the sound is originated, that is, from the vocal cords, and it changes its shape somewhat for every tone, that it may be adjusted to vibrate in sympathy with each tone. The sound which issues from the vocal cords may be beautified and strengthened, but also spoilt by this Resonator, and as I know of too many lovely voices being ruined in effect through a wrongly adjusted resonator, I find it safer to open this tube first, to give free passage to the song which may afterwards be created.

The Resonator is by many only looked upon as the creator of speech, and is thought of comparatively small importance for phonation



THE MOUTH WIDELY OPEN, SHOWING THE PALATE

AND TONGUE.

a The hard palate.

The soft palate and uvula.
The tongue.
The tonsils between the anterior and posterior

pillars of the fauces.

- a The soft palate.
 b The uvula.
 c The
- c The tongue.
 d The posterior pillars of the fauces.
 e The anterior pillars of the fauces.
 - The tonsils.



or sound; and many teach that as long as you speak distinctly all the difficulties of the resonator *must* be overcome, and though there is some truth in this, such advice would prove of little help to those who have difficulty in speaking distinctly in song, unless they at the same time realize why the difficulties of enunciation increase with song.

This is my third reason for treating the Resonator before the organ itself. In speech people do not as a rule take the slightest notice of the quality of sound; as long as they can enunciate sufficiently distinctly to be heard and understood, they are satisfied. The charm of a musical speaking-voice is however so great that people should endeavour to take some heed of phonation in speech. They would then simplify song—for there is comparatively little difference in the position of the organ for correct speech and for song. By correct speech, I mean speech in which phonation is controlled—in which there is quality of sound.

As speech stands to-day, it is often antagonistic to song. Because, as those who are acquainted with physiology ought to know, the larynx is lowered for song, that by greater friction against the expired air, it may give more sound and at the same time increase the

length of the resonance tube. Hence, when this lowering takes place in those who are used to speak with a very high-lying larynx, the tongue and soft palate receive a pull through the various muscles by which they are connected with the larynx, and not being used to this tension, they resist it, which results in strain of the muscles and in throatiness of tone, as the tongue-root is likely to block the passage, and press the epiglottis too much over the aperture of the larynx.

It is from this greater strain in tensioning that the difficulty of distinct enunciation in song arises, the difficulties mounting as the tension increases. Hence we find it most difficult to speak on very high notes.

To get the tongue-root under control in song is very tedious and difficult work with many, and those who have particularly suffered from it, are inclined to believe that all difficulty of song lies there, and if they teach will concentrate their pupils' attention on this unruly member, whether it is wanted or not.

The mobility of the Resonator is great, and the difficulty of getting it under control still greater. Its muscular action is as a rule developed far too little in speech wherefore it naturally fails us when we suddenly call upon it to carry out its function in the more tensioned position of song.

The Resonator must be in a healthy condition before it is worked upon, as inflammation is easily set up in this most sensitive part of our body. Sore throat is a very usual complaint among singers and speakers, and springs from either incorrect breathing or strain in the control of the Resonator. Song and correct speech should invigorate and strengthen the throat, as it invigorates and strengthens the lungs.

Abuse Nature and she will revenge herself tenfold: support her, and her benefits are innumerable.

CHAPTER IV

THE ORGAN

"There is much music, excellent voice, in this little organ, yet cannot you make it speak."

It was a comparatively easy task to treat the two elements that govern and intensify sound for their functions and positions are agreed upon, and however much at variance people may be as regards the absolute action of each, the facts remain that the lungs lie in the chest and contain the motor element, regulated by the diaphragm, and that resonance is created in the tube which extends from the vocal cords or vocal lips to the speaking lips.

But, as regards the vocal organ itself, the central operator in sound, the speculations in science are numerous and contradictory, and though physiologists agree that it is a flexible self-regulating reed-instrument, much in its construction goes to strengthen Ferrein's belief

that the vocal organ is a string instrument, and however much physiologists may treat this as a fallacy, there are reasons for it of such great importance, that the comparison is of benefit.

The position and action of the vocal organ in song is such a vexed question among all our various schools, that to get it under control is almost a hopeless task for those to whom Nature has denied what is termed "a natural position of voice."

In explaining the organ I will avoid mentioning muscles that would only confuse, for I wish this book foremost to be a practical aid to song and speech, and it is my endeavour to leave out statements and opinions that hitherto have proved to be nothing but speculations in science.

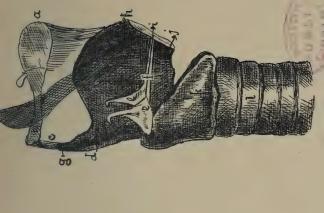
The vocal cords lie in a small triangular tube or box called the larynx, which is situated upon the windpipe, and consists of two shields (the thyroids) that meet in front in an acute angle, often protruding in the throat and known under the name of the "Adam's Apple." The opening at the top is triangular, at the basis cylindrical. The shields terminate upwards and downwards at the back in two horns, and are by the lower horns hinged on to the upper ring of the windpipe, and by the upper horns connected

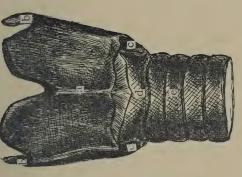
by muscular bands to the tongue-bone and to the fauces extending from the soft palate, wherefore the influence of the action of the tongue and soft palate on the voice may easily be understood.

The larynx is, as a rule, described as consisting of five Cartilages, but to facilitate my difficulty of making the organ clear to students of song (not to physiologists) I will treat the larynx separately as I did the frame work of the chest, and look upon it as an empty tube or box, consisting of its walls or shields alone.

The ring upon which the larynx is situated is as a rule spoken of as a cartilage belonging to the larynx, but I have most decided reasons for for wishing this ring to be looked upon as belonging to the windpipe, which it does, as by this, one realises in a clearer manner that the vocal cords become the central link between the motor element and the Resonator, and that their tension is controlled by muscles connected with both elements.

I wish the larynx first to be looked upon as an empty tube or box, the space of which in physiology is termed the glottis. By inserting the vocal cords into this tube the space or glottis is divided into three, that is, the respiratory glottis, below the cords, the vocal glottis, above





FRONT VIEW OF THE LARYNX. a The larynx.

SIDE VIEW OF THE LARYNX.

Tongue (hyoid) bone.

The upper horns. The lower horns.

The rings.

The windpipe,

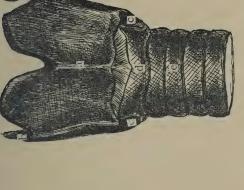
SIDE VIEW OF THE LARYNX, WITH ONE SHIELD CUT AWAY.

Tongue (hyoid) bone). Lid or epiglottis. Bands uniting the larynx and tongue bone. The larynx.

g Upper horn. The controllers or arytenoidei. Vocal cords.

v Vocal glottis, v Vibr Respiratory glottis. E The ring or cricoid.

Ringshield muscle, or cricothy roidens. Bands uniting larynx and tongue bone. Space filled with membrane. The ring or cricoid. b Lid or epiglottis. The windpipe. Lower horns. Upper horns. The larynx.





the cords, and the vibratory glottis between the cords. These terms are somewhat confusing, as it is difficult for the students of song to realize the functions of a space. But I trust that as I develop my subject, this difficulty will be cleared away.

The vocal cords lie stretched across the larynx fastened in front where the shields meet in their angle and at the back to two small pyramidical muscles (the arytenoidei) which are fixed on the upper ring of the windpipe.

These muscles are of great importance, as they regulate and tension the vocal cords, and can, by moving outwards and inwards, close or open the vibratory glottis; that is, the space between the inner sides of the vocal cords, the outer sides are attached to the walls of the larynx by a tissue, so that air can only escape through the vibratory glottis.

We see therefore that the vocal cords are stretched straight across, fastened to the larynx in front, to the upper ring of the windpipe at the back, through the means of the muscles which, to simplify the matter, I will term "the controllers of the vocal cords."

The ring to which both the lower horns of the larynx and these controllers are fastened, differs in shape to the other rings of the windpipe: it

is narrow in front and broad at the back, resembling the shape of a signet ring, and it leaves a space, which is filled up with membrane, between the larynx and the front part of the ring. From the front of this ring to the shields of the larynx run most important muscles—the ring-shield (cricoid thyroid) muscles, which by their contractions draw the larynx forward and downward to the ring or the ring upwards to the larynx, thereby further stimulating the tension of the vocal cords. Physiologists differ as to the movements of the larynx and ring but this question is of no importance here, as I wish simply to give a practical conception of the organ. The main importance is to understand that these muscles by their action influence both the resonator and the vocal cords. In opposition to them there is another pair of muscles running parallel with the vocal cords and fastened like them to the angle of the shields in front and to the controllers or arytenoidei at the back. The contraction of these muscles pulls the larvnx or ring back into its former position, thereby untensioning the vocal cords. These muscles are called the shield-controller muscles or the thyro-arytenoidei. The actions of these opposite muscles are therefore of the greatest importance, the ring-shield muscles tensioning,



voice is produced.



Vocal cords when Vocal cords in repose when no voice is produced.



Deep inspiration.



Laryngoscopic view of larynx when voice is produced.



Laryngoscopic view when no voice is produced.



VIEW OF THE LARYNX FROM ABOVE.



the shield-controller muscles untensioning the vocal cords.

The intricate construction of the various muscles and fibres that are under the immediate influence of the controllers (arytenoidei) may be likened to the fibres that are under the immediate control of the diaphragm: fibres which extend all over the framework of the chest and are the means of regulation. Somewhat in the same manner fibres and muscles branch off in all directions from the controllers, covering the lining of the larynx, but it would be hopeless to speculate upon the various functions of each: all that is necessary for teachers and students of song to realise is, that the arytenoidei control the opening or closing of the vibratory glottis by regulating the cords, and furthermore stimulate the muscles of the larynx which influence the resonator.

As regards the upper part of the larynx, consisting of the ventricles and vestibules I will say but little; it is supposed to take comparatively small part in voice-production, beyond its function as portion of the resonator. The action of the ventricular bands, or so-called false vocal cords, running parallel with and above the true vocal cords, acting in contrary motion with them, is at present a subject of speculation

in science, and though of much interest the discussion of it does not come within the scope of this little book. The idea of Mme. Seiler, which some physiologists still support, that the false cords produced the higher notes is proved a fallacy, and the fact is agreed upon by most that the whole range of the voice is created by the action of the vocal cords alone.

The only muscle that remains to be mentioned is the Epiglottis, which is a thin, leaf-shaped cartilage that covers the aperture of the larynx when we eat, so as to prevent anything entering the voice-tube when food passes into the gullet (æsophagus).

Having discussed the three elements separately, I will in my next chapter endeavour to explain how they work in concord one with the other.

Galen's idea of hundreds of years ago, that the larynx is a double valve is again brought forward by Professor Lunn, and strongly supported by some modern scientists, and everything points to the conclusion that they are right, but as I believe the contrary action of the false cords to be under the regulation of the true cords I think they give the subject undue importance in believing that it solves the truth of voice production. Another confusion of effect governing

cause. For it is beyond a doubt that sound is created through the medium of the expired air against the true vocal cords, wherefore they are set in operation *first* and effect or stimulate the action of the false cords.

CHAPTER V

HOW THE ELEMENTS WORK IN CONCORD ONE WITH THE OTHER

"Govern these ventages look you, these are the stops."

In connecting the three elements to form one perfect instrument, and regarding it as the organ of song, I wish to attract full attention to the manner in which it is linked together, that it may be clearly understood how it should be regulated. Much of the confusion as regards the treatment of the organ springs from the great mistake of making a subservient body the ruler, attracting attention to an effect, and believing it to have the power of control. The first thing to be realized is therefore what the muscles are that cause the instrument to act and the effect of such cause.

In the analysis of the three elements I treated the organ itself last, clearing the way to it, so to speak, through the medium of health, but in realizing it as "an instrument," I will treat it first as it now becomes the central operator, therefore the first body, as we naturally must concentrate our attention on that which creates song, if we wish to sing.

I explained in the last chapter that the larynx is situated upon the windpipe and that the vocal cords are fastened to the front part of the larynx and through the medium of the "controllers," or arytenoidei, to the windpipe: that is, to the terminating point of the motor element portion of the respiratory organ.

If we then look upon the part of the larynx which extends above the cords as part of the resonator and remember that the upper horns of the larynx are connected with the soft palate through muscles which extend from the horns to the anterior pillars, we realize at once that the vocal cords become the central operator between the organs of the motor element and the resonator, and we can understand the influence the action of either must have on the vocal organ, though both in the end are subject to it.

Therefore, since the larynx is situated upon the windpipe, it stands to reason that its position becomes dependent on the movements of the windpipe and is raised and lowered with it, and as the windpipe is under the control of correct breathing, this strengthens once more the old Italian masters' belief that correct breathing entirely controls song. But though it places the position of the organ, we have as yet to learn how to play upon it. And to do this we must understand how to govern the regulations which determine pitch and control the vibrations.

As stated before, the cords divide the glottis (the space of the larynx) into three—the respiratory glottis below the cords, the vibratory glottis between the cords, and the vocal glottis above the cords. These terms ought now to simplify matters for us, and we shall find by further analysis that each fulfils the functions which its name indicates.

The respiratory glottis measures out a certain quantity of air, controlled by the resistance of the tensioned cords, which are regulated by the arytenoidei, and hence are given the name of the guarders of the portals of song. The friction of the expired air, which escapes through the vibratory glottis, sets the cords vibrating, clipping the air into puffs, which constitute the vibrations that result in sound.

The action of the controllers stimulates the

contraction of the ring-shield muscles, which furthermore tension the vocal cords, by approximating the lower front part of the larynx to the ring or the ring to the larynx or both: an action which stimulates all the muscles of the vocal or upper glottis and influences the whole of the resonator by the muscles connected from the upper horns of the shield to the soft palate. This connection shows us the wonderfully consistent construction of the most perfect of all organs; the regulations working gradually upwards from the root, stimulating each other through one governing muscle when the *various elements are in working order*.

I think the current speculations of the day as regards voice-production lie mostly in the resonator, as the new belief is that its actions and various adjustments will entirely control the voice. I will therefore dwell upon it somewhat at length, as I feel sure I should help many if I could make them believe that song is neither under the immediate control of the soft palate, nor under the control of the agency speech, for Nature is not likely, as I have already stated, to make a second body control the first; in other words, to make a subservient force the ruler. The resonator *is* of great importance, but not as the governing body.

And to realize this *clearly* we must understand what the resonator does, and how it is regulated, even though further explanations involve repetition.

It extends, as we know, from the vocal cords to the nasal cavities which are separated from the mouth by a dome-shaped division forming the roof of the mouth. This roof consists of the hard palate in front, terminating at the back in the soft palate and uvula, a muscle which has through the means of other muscles the power of elevating and retracting the soft palate, thereby shutting off or opening the passage into the nose or mouth. The former can never be so firmly closed that it prevents the nasal cavities co-vibrating with the sound. This action of the soft palate is known to have much influence on the voice, which stands to reason, as it regulates the dome of the resonator, but is even for this action greatly dependent on another body.

The soft palate arches up with high notes, a movement which has made many believe that it is the regulator of sound, a popular error which has led many teachers and singers astray. I have once given too much importance to it myself, wherefore I speak of this error with great sympathy, and would like to

convince those who are led wrong by it, that the soft palate must not be regarded as a self-regulating body, but that its actions are dependent on another cause. I will dwell on the faults that the soft palate school creates when I analyse the various schools, for I wish in this chapter simply to show the connections and regulations of the organ.

It should be realised that the soft palate works in concord with the rest of the resonator, which has too many functions to carry out to allow the singer to concentrate in particular on one muscle, as such concentration is sure to hinder the natural action of the other muscles from carrying out their work,

The duty of the resonator is both to give sonority and to form the sound into speech, wherefore too much concentration on the raised position of the soft palate is apt to hinder the organ of the tongue. Both the tongue and the soft palate must be under control, and both will more easily be got so if we realize that they are connected by various muscles straight to the top of the shields, and consequently are greatly influenced by the action of the larynx.

Nature has so regulated the mechanism of the vocal organ that the secondary forces are governed through one medium. The soft palate must therefore—if in healthy condition—be left to the regulation of its dominating muscles—the tongue and the larynx, which through their actions adjust it to fit in, both with the enunciating organs and with each new vibration. But should the soft palate and the various other muscles of the throat and larynx not be in a healthy condition there is great difficulty in getting them so, and as comparatively few people have a perfectly healthy organ, the preparatory work of the Resonator is often tedious before it yields to the workings of nature.

As we know that the larynx contains the vocal organ—therefore is the creator of sound—most people will agree that it is safer to think that the Resonator is regulated by the first body than vice versa; particularly as the constant lifting too high of the soft palate, as I have already stated, creates new difficulties for the tongue: difficulties which I will specify in my chapter on speech.

Hence, in understanding the consistent workings of the organ according to nature, let us realize that we first of all must have control of breath, which is the element through which song is created, and that by such control we shall also secure a correct position of the vocal

organ; correct control of the respiratory organs gives therefore both the necessary store of air and the proper adjustment of the vocal apparatus.

The organ being rightly adjusted will now by the action of the controllers regulate the outflow of air, through the medium of the tensioned cords, which in resisting the air vibrate, and clip the air-column into puffs.

That the larynx can be acted upon through the working of the soft palate stands to reason, but it is better and far more natural that an organ should have the power of adjusting its Resonator than, as said before, and which cannot be too often repeated, the Resonator, the organ or in other words, the second body the first.

These are the conclusions I have arrived at through years of study, tested and strengthened by argument and experiment.

CHAPTER VI

Song

"He likened her voice to a string of pearls."

In analysing song itself it is not my intention in this chapter to go into scientific calculations of vibrations, which, according to Helmholtz vary from 16, to 38,000 in a second, neither will J here attempt to explain pendular or compound vibrations, but simply to state how sound is created and through what means we are given the power of rendering it beautiful in song, and in what manner such power may easily be abused.

Song is often misunderstood and profaned, and should not be judged either by quantity or loudness. A sound, to be worthy of the name 'Song,' must be beautiful and rendered with ease. A sound that is given with force or any physical strain is a noise, even though its

SONG 55

vibrations are controlled in pitch, for we have, as "singers" often prove, controlled noises; by this I mean forced singing, which need not necessarily be out of tune.

Sound is the sensation created in our ear by vibrating air, communicated by the medium of the air-ocean that surrounds us everywhere. Sounds are either pleasing or displeasing to the ear according to the manner in which the vibrations are controlled, whether regular (periodical) or irregular (non-periodical). The vocal cords are the cause of the vibrations, each vibration being dependent for sonority or quality upon a sympathetically adjusted Resonator. The pitch of the tone is regulated by the tension of the cords, which are under the immediate control of the arytenoidei. Helmholtz says that the vocal cords "have the advantage over all artifically constructed tongues, of allowing the width of their slit, their tension, and even their form to be altered at pleasure with extraordinary rapidity and certainty, at the same time that the resonant tube formed by the opening of the mouth admits of much variety of form, so that many more qualities of tone can be thus produced than on any instrument of artificial construction,"—which if we are to believe him, means that the voice is no more a reed-instrument than a stringed one, and it would be of great benefit if we could arrive at the satisfactory conclusion of realizing the organ as the most superior, therefore above comparisons, though some of them, have proved of great use.

Ferrein likened the human voice to a violin, and my reasons for my sympathy with this comparison are great, firstly because it tallies much with the sensation of song, secondly and mostly, because it was through Ferrein's comparison that I arrived at conclusions which have proved of the greatest benefit in my teaching, as they are simply Ferrein's idea reversed.

Ferrein said that the diaphragm is the hand that guides the bow, the vocal cords, the strings, with their point d'appui in front, fastened to the larynx, and the arytenoidei the pegs which tension the cords; the air, the bow playing upon them.

The flaw in the comparison is said to be proved by scientists on the plea that it could only be true if the sound came from the bow or air, and not from the vocal cords. I, personally, feel that it matters little whether it is the string or the bow that creates the sound, as they are absolutely dependent upon each other. Wherefore the argument seems to me as futile as trying to decide whether, in clapping one's hands

SONG 57

together, the sound comes from the right hand or the left,

The vocal ligaments are to this day by many called "cords" from Ferrein's comparison, which I think as good a term as any other, and no more misleading than most.

After taking into consideration all the arguments for and against Ferrein's conception, I reversed his idea, knowing there are two ways of creating vibrations, one by moving the air upon the organ, the other by moving the organ upon the air. Instead therefore of thinking the air the bow playing on the cords, I thought the air the body played upon by the cords; the respiratory glottis (under the cords) measuring the quantity of air propelled from below by the diaphragm and regulated from above by the cords which would shape the air into puffs, varying according to tension.

Such control of breathing is perfect control, and can stand the test which the old Italian masters used on their pupils when they placed a lighted candle in front of their mouth and made them sing through a phrase without causing the flame to flicker; a test which proves the idea that the air-escape must increase with height to be a popular fallacy. High tones do not demand more air, but more control through

the medium of more tensioned cords. As the tension of the cords increases, the vibratory glottis becomes smaller, hence the means of escape for the air lessened, and the pressure of air against the cords intensified, increasing the rapidity of their vibrations, which determines pitch.

The tension of the cords is under the immediate influence of the arytenoidei, which also regulate the opening of the vibratory glottis; and furthermore stimulate the ring-shield muscles into action. This action influences both the tension of the cords and the Resonator by the larynx being drawn forwards and downwards to the ring. By every new degree of contraction in the ring-shield muscles, there is a movement in the larynx which governs the adjustment of the Resonator that it may be in sympathy with each new tone. The whole machinery of the vocal apparatus is therefore regulated by the central operator, the vocal cords, tensioned by the arytenoidei, which twist back for height and forward again as the cords relax.

The larynx is felt to move as pitch mounts, a fact springing from the increased contraction of the ring-shield muscles, approximating the tring and larynx in front, but as the cords are

SONG 59

fastened at the back to the upper ring of the windpipe, through the medium of the arytenoidei, the position of the cords need not be disturbed by the action of the larynx; if the cords moved upwards with the pressure of air, it would necessitate loss of tone and have the effect of a violin slipping away from its bow. In fact, far from slipping up with the intensified pressure of air the cords meet it with equal increase of resistance giving the feeling of the backward push which has influenced so many to force the larynx too low.

Resistance can also be obtained by permitting the larynx to rise to its utmost limit, but as such rising shortens the Resonator, and presses the larynx against the tongue-root, thereby producing throatiness, it is not worthy of consideration except as an action to be avoided.

Therefore if it were thoroughly understood that song is controlled air, governed entirely by the vocal cords, singers and teachers would realize that there is no need for the contortions of face which generally accompany high notes, making speech almost impossible by the exaggerated opening of the mouth. High notes are not an explosion of air which results in a scream, but air perfectly controlled. Singers who have their organs under command look as

thoroughly at ease when they sing as when they speak, grace and ease of manner being absolutely essential before song can give pleasure.

To render the infinite variety of the shades of tone-colour is an art which can only come with the experience of handling the organ. The secret lies in the control of the breath, the tensioning of the cords, and the actions of the larynx, the movements of which will influence the Resonator. I used to strive for effects through the medium of the soft palate and the regulation of the uvula, but it always gave an unnatural expression to the face and an unnatural quality to the tone, besides interfering with speech. I therefore sought to control all tone colouring through the same medium as the creation of tone itself, that is, through more or less escape of air, and through more or less tension of the cords, thereby influencing the Resonator, sometimes keeping the sound open, sometimes closed.

Hence song is created in the larynx, wherefrom it flows up into the Resonator, where through the various agencies of the enunciating organs it will be moulded into speech.

CHAPTER VII

THE THEORY OF SOUNDS AND VIBRATIONS

I have in my chapter on Song purposely avoided the theory of sound itself, as I first wished to treat song as an art. Students have great difficulties in connecting the law of vibrations and physical and physiological acoustics with Aestheticism, which stands to reason, as the connection of the two is extremely trouble-some to make clear. Singers remain as a rule in absolute ignorance of the laws of vibrations and acoustics, for they naturally are guided in their song by a good ear and feeling as "music stands in much closer connection with pure sensation than any of the other arts. Hence its effects depend mainly on psychical action."

"The plastic *arts*, although they make use of the sensation of sight, address the eye almost in the same way as song or poetry addresses the ear. Their main purpose is to excite in us

the image of an external object of determinate form and colour. The spectator is essentially intended to interest himself in this image and enjoy its beauty; not to dwell upon the means by which it was created. It must at least be allowed that the pleasure of a connoisseur or virtuoso in the constructive art shown in a statue or a picture, is *not* an essential element of artistic enjoyment,"

Most singers feel this intuitively in their art, and are bored with the tedious study of the science of vibrations. But though a good ear and feeling is a safe guide in song, the knowledge of the laws of sound and vibration ought to a certain extent to be familiar to the singer as well as to all teachers of song or elocution, even though such knowledge at first may not appear practically to influence song or speech.

All musical sound is created by periodical vibrations carried to our ear through the medium of the air-ocean, which acts upon our hearing apparatus and throws it into similar vibration. Sounds or tones are either simple (pendular) or compound; the latter consisting of various simple or partial tones.

Simple tones are sweet, but wanting in power.

Compound tones are rich and powerful according to the manner in which the partial tones

are sounded. If the upper partial tones are very distinct the voice becomes harsh, if the lower upper partial tones are well sounded up to the sixth partial, the tone will be rich and musical. Wherefore the partial tones determine the quality of tone.

"The series of these upper partial tones," says Helmholtz, "is precisely the same for all compound musical tones which correspond to a uniformly periodical motion of the air.

It is as follows:—

The first upper partial tone (or second partial tone) is the upper Octave of the prime tone, and makes double the number of vibrations in the same time. If we call the prime C, this upper Octave will be c.

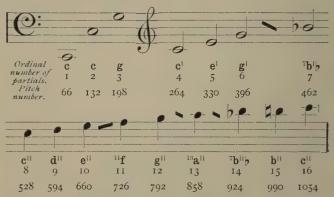
The second upper partial tone (or third partial tone) is the fifth of this Octave, or g, making three times as many vibrations in the same time as the prime.

The third upper partial tone (or the fourth partial tone) is the second higher Octave or c^I, making four times as many vibrations as the prime in the same time.

The fourth upper partial tone (or fifth partial tone) is the major third of this second higher Octave, or e^t, with five times as many vibrations as the prime in the same time.

The fifth upper partial tone (or sixth partial tone) is the fifth of the second higher Octave or g^I, making six times as many vibrations as the prime in the same time.

And thus they go on, becoming continually fainter, to tones making 7, 8, 9 etc., times as many vibrations in the same time, as the prime tone. Or in musical notation



where the figures (in the first line beneath show how many times the corresponding pitch number is greater than that of the prime tone, and, taking the lowest note to have 66 vibrations, those in the second line give the pitch numbers of all the other notes.

The whole sensation excited in the ear by a periodic vibration of the air we have called a musical tone."

Such a tone has three component parts:

Quality Power and Pitch.

The quality of tone depends on the form of the vibrations, which also determines the occurence of upper partial tones.

The power of tone depends both upon the greatness or amplitude of the vibrations and upon the density of the air.

The pitch of tone depends upon the rapidity of the vibrations,—musical notes mounting with the number of vibrations.

Vibrations are air waves set into motion by the *sounding* body, and the process in the air is exactly the same as that on the surface of water if a stone is thrown in; waves will advance in all directions, expanding in a constantly enlarged circle. The particles in the air move periodically backwards and forwards, setting the adjoining particles into motion, till they return to their original position. And so the adjoining particles influence others, till the waves extend throughout the air-ocean until interrupted by some obstacles. If they touch an opposing surface they will return and hence create what we know as an echo; sometimes we hear it, sometimes others hear it according

to the direction in which the opposing surface propels the air-waves to travel.

The ear gives the sensation of sound, and is most wonderful in its construction; it can generate many kinds of sensation according to the action of the air-waves that throws it into vibration.

"The physical acoustic is essentially nothing but a section of the theory of the motions of elastic bodies: the rapidity or slowness does not affect the laws themselves in the slightest degree."

Noise and all unpleasant sounds are created by non-periodic motions. Every form of wave that touches the ear produces a distinct and separate sensation, wherefore a musical sound can easily be distinguished amidst noise, and after some practice most of us can follow the progression of the different voices in ensemble singing or of the different instruments in an orchestra.

"The sensations of tone are the material of the art. And the theory of the sensations of hearing is destined to play a much more important part in musical aesthetics, than, for example, the theory of perspective in painting. Those theories are certainly useful to the artist, as means for attaining the most perfect representation of nature, but they have no part in the artistic effect of his work. In music, on the other hand, no such perfect representation of nature is aimed at: tones and the sensation of tone exist for themselves alone, and produce their effects independently of anything behind them" (Helmholtz).

CHAPTER VIII

SPEECH

"... whose voice, attuned above All modulation of the deep bowered dove, Is like a hand laid softly on the soul."

In treating speech I wish to do so in relation to song, and to show how close is their connection, for it is essential that before speech can be rendered with ease in song, it must have become one with it. Speech is a presentative element and created, says Max Müller, by "an instinctive and irresistible faculty of the human mind, which impelled it to give articulate expression to its conception." Speech has with most of us become a second nature and an unconscious factor. It is in song or in public speaking that we first may realize its difficulty, which shows us that there is something in the position of the vocal apparatus when used with increased phonation, that disturbs the organs of speech.

To make speech audible there must be phonation or sound, which always issues from the vocal organ. With some this sound is musical, with others weak and timbreless. This difference springs to a great extent from the manner in which the resonator is adjusted, and the resistance controlled by the vocal cords; in some cases the resistance is governed by a lowered and firmly placed larynx, giving timbre, in others it is uncontrolled giving little or no resistance: hence less sound. The movements of the larynx have a great influence on the root of the tongue, as the upper horns of the shields are attached to the tongue-bone by muscular bands. People are apt as a rule to turn it the other way round, and say that the tongue-root has great influence on the larynx, which it has, and it would at first appear that both mean the same thing, but in clearly distinguishing their different influences lies the solution of the greater part of the difficulty of song in speech and speech in song. If the organ is properly regulated the two are so closely allied that it should be almost an impossible thing to say where the one ends and the other begins.

To put the difference of the influence of the tongue-root on the larynx and the larynx on

the tongue-root clearly and unmistakably I distinguish them as follows:

The influence of the larynx on the tongueroot is good: the influence of the tongue-root on the larynx is bad. Because in all perfect speech the tongue-root should be supple and drawn well in that the resonator may not be blocked, and such a position of the tongue-root is obtained by the lowering of the larynx, which at the same time will be in position for timbre of tone; that is, in a position to resist the expired air. On the other hand, should the tongue-root be slackly controlled it arches up, drawing the larynx with it, taking away resistance, consequently musical timbre of tone, whether in speech or song. Therefore if the tongue-root were trained from our youth through the medium of correct speech to be under the regulation of the larvnx, we should not have so much trouble with song. It is the uncontrolled action of the tongue-root that often creates so much work for the singer or speaker, and it stands to reason that it is difficult to get it under control in song or elocution, if it never has been governed properly for ordinary speech. It is the tip and the sides of the tongue that are active in speech, as the root should be supple and little used. A stiff tongue-root has been the stumbling block to many singers. It is the relaxation of the muscles of the throat that makes it supple and open.

If we therefore were taught elocution by those who understand the organs, much trouble would be overcome, and some of the impediments of speech, such as stammering, would be less frequent.

It is well known that many of the disorders of speech are modified by attempting to govern the organs through song. As Wyllie says, "Few stammerers would stammer at all, if they deliberately sang or intoned their conversation." And furthermore Melville Bell, whose experience in the treatment of the disorders of speech has been very great, asserts that the success of stammer doctors is very largely due to their almost universal practice of making their patients read aloud in full voice every day.

And what can we gathered from this? That the lowered position of the larynx, which we all involuntarily try to take in song, governs the root of the tongue. Most people in the present day, speak with the larynx far too high, so that when the organ is lowered for song the tongue-root, unused to be drawn down, resists the pull and springs up, blocking the passage. Hence the antagonism between song and speech. If

we were taught to speak with the correct position of the larynx and thus phonated properly in speech, we should strengthen and encourage song, and it would be almost impossible to distinguish between the two. But as speech stands to-day, it lessens our chances of song, by weakening the enunciating organs, unfitting them from carrying out their function in the more tensioned position, which is demanded both for song and correct speech.

A speaking voice should always have musical quality, in other words, be part of song. Many who have the organ naturally placed are apt to lose command over it, when excited, which springs from an inclination to lift the organ when our feelings get the better of our control. Knowledge of the action of the organ itself remains the only sound basis whereon to rely for the demonstration of our art.

As regards vocalisation, the soft palate takes an important part, another reason why this muscle should not be looked upon as the controller of song, as it varies in position with the different vowels, being raised higher for o, u, i, and lower for a and e (Italian vowels). Its action in vocalisation might therefore interfere somewhat with our idea of the position it ought to take according to pitch and by this con-

tradiction we may either spoil the tone or the vowel: a reason which should strengthen the belief that the actions of the soft palate are subordinate to another cause.

Song cannot therefore be the outcome of speech, but speech can be regulated and controlled to become a part of song: a statement which I expect will be sceptically received, as I know that the timbre of one's speaking voice is looked upon as a natural gift.

Ruskin said, "Learn to breathe correctly and your life may be song," and I add, "Learn to speak correctly and your chances are still greater."

CHAPTER IX

PSYCHOLOGY

"And pure the pearls, of matchless beauty they.
Yet purer still her song, for there was soul therein."

Physiology and Psychology constitute the two halves of the truth of perfect song. Through the one we obtain the practical, through the other the theoretical, one giving us knowledge of the agencies we employ, the other developing our feelings in art.

One, the body: the other, the soul.

There are, however, singing teachers who say that Psychology is the fundamental study, and that through it alone shall we be able to learn to control song, and as this creates much confusion I will explain wherefrom such an error has sprung, as it is absolutely essential for students and teachers alike to realise that the only firm foundation whereupon to base song or correct speech is knowledge of the organ itself.

It is not that I ignore feeling or disposition, far from it, I know only too well that the success or failure of singers depends upon temperament: through it alone will they prove themselves artists or not. But we must first of all be practical and know the tools we employ, so that we may learn to handle our organ with economy.

The misunderstanding of Psychology as it is used in voice-production springs greatly, I think, from confusing its component parts, which are:—

- (1) Cognition—knowing.
- (2) Volition—will.
- (3) Feeling—affective states.

By the study of Psychology in song I mean the development of the temperament, the study of the dramatic part of song, that we may be enabled to find ourselves in our art and give expression to our sentiments and to the sentiments of the poet, so that, if we possess the soul of an artist, we may render it in our song. For then alone will our study of this much misunderstood art result in what is worthy of being termed "song," which is, after all, but a perfected speech.

But there are those who treat the understanding of Psychology differently simply meaning by it the will to do and the mind to understand with, and from that point of view Psychology must necessarily become the fundamental basis of all science, as it stands to reason that to learn anything at all we must have a mind to know with and a will wherewith to exercise our mind. As Sully says: "to be able to fix the thoughts on a subject is the prime condition of all mental achievement, whether it be intellectual, scientific, literary or practical affairs."

But if we enter upon any particular study we take it for granted that we have a will and mind to achieve by: Psychology therefore remaining subjective, so that we may concentrate all our energy on our object.

In the study of voice-production our object is to get the organ under control, that the voice may be the medium through which we render our sentiments.

Turn it as we will, the fundamental basis must remain practical, and it is one of the teacher's most difficult tasks, but one by which he will prove himself capable of his work, to understand how to create interest in the students throughout the development of their studies.

If masters had sufficient knowledge of the organ, the elementary stages of voice-produc-

tion would not prove a drudgery, but as frequently the students do not understand what is demanded of them, they long to get to what they call "song itself," showing a natural inclination to hurry away from work that appears uninteresting, that they may get at that which holds a strong interest for them.

In these stages masters are often entirely to blame, but we have on the other side excellent masters and pupils who are too impatient for quick results to take pains with the preparatory stages.

A singing teacher's life is one that is full of disappointment. He may have pupils with good voices and no temperaments, or with temperaments and no voices, which after all is not strange, since the causes from which they spring are opposite, and the perfect balance of the two, which would constitute a perfect artist, very rare. The voice is physical, the temperament psychical, a good voice therefore dependant on the health, the other on the brain and nervous force.

Dramatic art is the cry of the day, and though it is undoubtedly the greater, it is also the more difficult art—it is a progression of the old cantabile style, and should hold the old Italian school in its grasp, as we know the

greater contains the less. But as the art of song stands to-day pure cantabile singing is almost lost, replaced by a forced noise which is accepted on the plea that it is the modern school of dramatic art.

But believe me, when Wagner stepped forward with his revolutionary ideas, he did not mean to destroy the beauties of a perfect organ, but he meant to add human qualities to it, that it might not be handled only as a perfectly regulated machine, but become the medium of human sensations. He did not mean that the beauty of timbre should become forced because interpreting the intensity of love and passion. Wagner saw and felt that song, as it was represented by the old school, was nothing more or less than an exquisite instrument; a body, to which he added a soul: in other words, physiology, to which he added psychology.

Let us not therefore make the mistake of thinking that in our greater development we can ignore the old Italian school. On the contrary we must understand it, hold it and add to it, realizing in full that the so-termed dramatic art is the last touch by which we may make or mar our song.

Hence, song, which has become the medium

of expressing true feeling, is the most perfect art—while song, which is regulated only by the understanding of the mechanism of the organ proves nothing more than a perfect instrument—a pearl of value, but a dead jewel for all that.

In the first stages of the study of voice production pupils must look to their master for help and knowledge—in the second they receive guidance from him, but must look for the power within themselves. A temperament either is in the pupil or it is not; it may be asleep, as it is with most of us, till through experience we dare to realize it. But a temperament can not be given, it must have a root within ourselves though years may pass before it develops and we may even have been tested and yet have failed from want of courage to express what was in us; still it was always there and when first realized, will never be mistaken by the true judge.

But though a master has not the power to create a temperament, he ought to have the power to help his pupils to understand what a temperament really is and cure them of absurd affectations and mannerisms which they confuse with dramatic gifts, and in which they too conscious of themselves, forget to consider either the poet or the composer. Masters, who are

fitted for their work, will make their pupils realize that all art, which is worthy of the name, is simple and sincere, and above all, treads in the foot-prints of Nature, and that song must be realized as Art for Art's sake, and not as a means to express personal little feelings or to attract personal little attentions.

Song is looked upon with too much sentimentality, like acting, amateurs and many professionals alike believing that both demand some assumed manner, some kind of disguise, instead of which both are given us, that we may for a brief space throw sham aside and let our inmost feelings speak unhampered by the cloak of conventionality.

Such acting and such singing will hold the masses enthralled, because it was inspired by that which after all remains the only absorbing and controlling power in the world: human feelings and sympathy.

CHAPTER X

THE DIVISION OF SCHOOLS

"All discords are but harmonies not understood."

I have in the foregoing chapters endeavoured to analyze the vocal organ from its fundamental basis, explaining the various functions of each element, and how they work in concord in song.

In other words I have put together an instrument and tried to show how it may be played upon in such a manner as to do justice to the beauty of the organ and render the sentiments of the singer.

I will now go back the exact way I came, dividing and disconnecting the elements again, that through this means I may show how the various and apparently contradictory schools of the day are but smaller parts of one great whole: fragments as it were of one organ, out of which each master attempts in vain to make a perfect instrument.

Song in its completeness consists as I have said of two equally important halves: Physiology, the body, represented by sound—Psychology the soul, represented by speech.

But the spirit of the day is opposed to this and has divided them, creating two antagonistic schools; the so-called new dramatic school, in which speech rules all, and is said to govern song, and the old "improved" school in which speech is not mentioned and is looked upon as no part of song.

These two schools may be said to be the main springs from which all the other schools branch off and the advocators and teachers of every one of them are in opposition and are daily becoming more personal and abusive.

The dramatic School, embracing all the schools that ignore Physiology.

The old "improved" school embracing all that ignore Psychology. One saying "Take care of the soul and the body will take care of itself," the other "take care of the body, and the soul will take care of itself"—; the one-sidedness of the advice of each is too apparent to need much comment and reminds us of the words of the "Duchess" in "Alice in Wonderland," "take care of the sense, and the sounds will take care of themselves."

The schools which I wish to analyze are the following, and no doubt their names will be familiar to singers, teachers and students alike.

- (1) The school of three Registers.
- (2) The Larynx School (embracing no less than four opposed modes.)
- (3) The Pharynx school, embracing two opposed modes.
- (4) And the Resonance school, under which heading I place also the school of speech as a ruler of song.

All of these schools are of importance and nearly all hold a good point, and spring from the various necessary actions of one of the elements of which the organ consists: elements which it is necessary we should concentrate on separately, for, as Sully says, "It is by fixing attention for a time on a presentative element that we can bring it into relation with other elements."

The teachers of all of these schools ignore however, entirely the necessity of such relation.

I do not here refer to teachers who have knowledge of their work, but to those who, by little tricks of their own, believe they have solved the truth of voice-production and who, by their absolutely opposite advice, confuse the poor bewildered student, leading him further and further away from the truth. It may be of benefit to mention some of these various forms of trickery, for they are all tricks based upon misleading sensations or effects without regard to their cause.

- (I) Feel your voice entirely in your head.
- (2) Feel your voice entirely in your chest.
- (3) Feel your voice in the back of your head.
- (4) Feel your voice in your forehead.
- (5) Feel the voice on your lips.
- (6) Direct your voice to your soft palate, till the latter gets so contracted and hard that it will resound the tone.
- (7) Practise with a spoon on your tongue.
- (8) Have a paper collar round your neck and keep it very tight for high tones, but without breaking the paper.
- (9) Throw your body forward and backward in quick succession and say, "Ah."
- (10) Hang over the back of a chair with your arms relaxed and say, "Ah."
- (11) Run upstairs quickly and down again without moving the chest expansion and say, "Ah."
- (12) Practise with a walking-stick extended between your hands, against the back of your head, etc.

There are many more of these tricks, but these suffice to show the existing confusion. I have had the pleasure of receiving most of these directions myself during the period of my studies, when years ago I lost my voice through the combined results of the various schools; schools which I will analyse one by one in separate chapters as I wish their points to be clearly understood. Some give us most aid by their error, which, when realised, yields as much benefit as the truth.

I will take the schools in the succession I myself have studied them, to show how one undid the work of the other till the voice lost all natural sweetness of timbre, an experience which many have had the sad fate to share with me, for it is certain that out of the great number of singers that fail, more fail from want of proper direction than from want of voice.

CHAPTER XI

THE SCHOOL OF THREE REGISTERS

The question of registers and breaks, is one that has evoked more controversy in voice production than any other. Unfortunately it was first started among some of the old Italian masters, who, though they recognized the error of dividing the voice into the head medium and chest voice, still clung to the terms.

Manuel Garcia, in his book on the voice, "Hints on Singing," says "these names are incorrect, but accepted. And the pity of it is that they were accepted, as the very terms are misleading and make the student think in three different directions for the various tones, thereby encouraging an action which leads to loss of control over the organ, disturbing its position, which is the cause of the breaks,

There are no breaks in the voice.

And proper handling would soon prove this, but

unfortunately as few of us speak with correct phonation, we have weakened the medium of our voice before we attempt to sing, a weakness which the three register school intensifies, as its conflicting advice of head and chest voice tears the medium still more. Students of this school generally get hoarse from practice, the inevitable result of such treatment of the organ. Hence this school creates its own defects, for, as all those who are acquainted with the faults of the various schools know, students of the three register school have rarely a good medium; wherefore all who advocate this school arrive at the conclusion that the medium is the most troublesome part of the voice. One of the leading supporters of this school says that "the medium is frequently weak and veiled in all female voices." This is true, and springs from the fact that few women breathe correctly, hence speak with their larynx too high, a fault that song might cure, but which the three register school encourages by permitting too high a position of the larynx, both for the medium and the height. It also encourages escape of breath in the middle notes, and forces the height which results in noise that so painfully often is accepted as song. High notes should not increase in loudness, but in sweetness and sonority, that the inclination

to shrillness in all rapid vibrations may be modified. The belief in the breaks in the voice. is, I am glad to say, decreasing, though there are still many who cling to it on the plea that these breaks must exist because almost all singers have difficulty in overcoming them. But the very fact of our being able to overcome them ought to show that they were not meant to be there. We have ourselves by doing wrong created these difficulties like many other evils, but because they do exist, we can hardly claim that they must or ought to exist. Therefore, even if breaks do exist it proves nothing, though it may seem a good reason for believing in them. I once developed breaks myself in this school, or rather the school developed them in me, and having got them, I too believed for a time in the necessity of them in song on the ground of their existence.

In after years, when my practical experience and knowledge of physiology stood me in good stead, I analysed this school, realised its errors and gained much by it. I saw that the three register school had sprung from a confusion of cause and effect, and that the singer for the creation of the different tones was made to direct her attention to where the sensation was felt, instead of regulating her voice throughout

her whole compass by the control of the organ that created it.

The first thing that is absolutely essential before the error of this school can be recognised, is to realise that the vocal organ, which produces all sound, lies in the larynx, and is played upon by the motor element that lies in the chest, and that the sound is intensified by the reasonator, which extends from the organ up into the head. But if students and teachers suddenly take their attention off the organ whereon they play, and concentrate on the two opposite extremities, that is on the chest and head and press in each direction according to low or high tone, they will naturally lose control of the organ itself, which will be strained too low with the one action and too high with the other, forcing the extremes of the voice whilst weakening the medium. "Everyone would laugh at a man who should pretend to smell with his lips or see with his fingers; yet such claims are not one whit more absurd than those of singers who profess to fetch their voice from the back of the head, the roof of the mouth, the bottom of the chest, or anywhere else that their misinterpreted sensations lead them to fancy. As a basso profondo is sometimes figuratively said to "sing out of his boots," we

may perhaps be grateful there is no "voce di piede" among the acknowledged registers."

The three register school has, by the wrong result of its teaching, stimulated much research, and through its errors we are made to realise the necessity of having our attention on the organ we play upon, that we may not lose our control over it. And in having recognised this, we have obtained an excellent point from the three register school.

CHAPTER XII

THE LARYNX SCHOOL

When the unsatisfactory result of the three Register school gradually became evident, many of its former supporters were convinced of its deficiency. New speculations arose, through which it was realised that the position of the larynx had been too much neglected, and the conclusion was arrived at that this neglect had caused the breaks in the voice. But the originators of the new speculations immediately went to the other extreme of believing that, by concentrating all attention on the larynx, they would overcome all difficulty of voice-production, and thus solve the mystery of song.

Hence another school worked its way forward in which the position of larynx alone was discussed. But the advocators of this school soon disagreed among themselves, and split up into four opposite parties, each declaring the position

of the larynx to be different. One said that the organ ought to remain rigid, the other that it could never be placed too high; the third that it could never be placed too low, and the fourth that it ought to move upwards with every tone as the scale ascended till it stood very high in the throat for the more tensioned tones. And each invented methods of their own to place the organ according to their own conception of what the position ought to be, doing their best to strain the voice by telling their pupils that the position of the larynx is immediately under the control of the will, ignoring the natural workings of the organ and consequently straining it as they all aimed at a particular result without knowledge of the means they ought to employ.

Of the four branches of this school, the two that advocate the extremes are the worst, because they force the voice more than either of the others, destroying the sweet natural timbrer, which gets quickly replaced by an unmusical loud sound supposed to be of greater value because of its increased volume. As regards the faults of the very high position of the larynx, they have already been discussed. The method of the depressed larynx lies in what I term the backward action; when, with-

out any regard for the opening and relaxation of the throat, the pupils are told to think lower and lower for each tone as they mount the scale "until they feel high B pinned somewhere to their breastbone." I have read this advice in print and have often heard students discuss it among themselves. This forcing of the larvnx before the resonator is prepared is somewhat equivalent to planting a flower in the earth by stamping on it, the result being disastrous to the flower, though it makes little impression upon the earth. And so with the larynx, which in spite of all possible force will never, through wrong means, fall into a correct position, but simply be strained by what must always prove a futile process—the attempt to regulate the workings of nature by opposing her actions.

In the larynx school many teachers employ the laryngoscope which, though useful for disease, will no more benefit the study of song than the disecting of and experimenting with a dead larynx will initiate us into the secrets of voice production, as in both cases nature is made to act under unnatural circumstances.

The larynx school has undoubtedly a most excellent point, inasmuch as it strives to regulate the position of the larynx which all

singers must know how to adjust, but it strives through wrong means. If teachers were thorough physiologists they would know that the position of the larynx is controlled by correct breathing, through the medium of the windpipe. To keep the larynx rigid for sound is impossible, as it moves slightly upon its hinges for every note, adjusting itself and the reasonator through its movements. Its action can be felt in the throat, and no power of will could keep it still during song. It can as easily be forced too low as it can be lifted too high. The contraction of the windpipe is the cause of the now much discussed sensation behind the breast-bone: a sensation which has led some ignorant persons to believe that the larynx can be drawn there. The sensation of this contraction which is distinctly felt is however of great benefit and helps pupils to understand that the larynx will be regulated through the windpipe by relaxation of muscles without any force or pressure on the delicate little organ itself; force which is very injurious and often results in laryngitis.

The great trouble of voice-production at present is that so many are guided entirely by sensations without understanding them, and which therefore lead to the most extravagant and often ridiculous conclusions, conclusions that give rise to methods in which the teacher strives through trickeries to obtain effects which can only be gained by-knowledge of their cause.

Still, for all its manifold faults, the Larynx School was a step in the right direction, but, in spite of its good points, was doomed to fail for want of sufficient knowledge.

CHAPTER XIII

THE PHARYNX SCHOOL

When the shortcomings of the larynx school became more and more apparent, the scientists of voice production were as much at a less as ever, and searched for light in new directions. Movements were made which resulted in a school in absolute opposition to the larynx school, and the arguments whereupon this new school was founded seemed in every way as plausible as had appeared the arguments in favour of the larynx school. Many agreed that as the latter had done little or nothing to elucidate the mystery of voice-production, the remedy must be sought for in the regulation of the Resonator; arguments which were enforced by the fact that the attempt to regulate song through the action of the larynx had added new complications by giving a harsh timbre to the voice. Hence the founder of the new school

decided that the larynx should not be discussed at all, but that the voice must be trained entirely through the adjustment of the Resonator, as they had arrived at the conclusion that song obtained its quality and sonority entirely from the Resonating tube, the cords simply giving the primary vibrations, which, if the Resonator were properly adjusted, would take care of themselves.

This school advanced with rapid strides and is known under various names. I call it the Pharynx School, as that was the name under which I made its acquaintance. And it is undoubted that of all the schools of the day, it is the school which forces least and gives the most sympathetic timbre to the voice, because it in no way strains the organ itself. It is taught through the actions of the soft palate and uvula, which are said to have the power of regulating both the larvnx and the resonator. It gives an atmospheric, though somehow hollow, sound to the voice. The work of this school is excellent as fundamental work, for it opens and prepares the Resonator, but in spite of its excellence it will never produce singers, except the student should happen to be in need of this particular training, because it has, in its way, as great faults as either of the other

schools; and though void of strain, it adds to the difficulty of distinct speech and encourages, what according to Witkowsky is almost as bad for the cords, escape of breath. Vocal tone is obtained by friction of the expired air against the tensioned cords, and the constant lifting too high of the soft palate lessens the resistance of the organ against the air, hence weakens the tone unless the larynx is forced up to its utmost limit, where sound will be shrill from want of Resonance. Firstly, therefore, the Pharynx School induces lack of timbre by diminishing resistance; secondly, it encourages indistinct speech, the reason of which is apparent since the soft palate takes active part in vocalization and is often hindered in this function by being called upon to do the entire work of the Resonator. This should prove that Physiology would stand teachers in good stead, if they had thorough knowledge of it-for they would then understand that the Resonator is not a self-regulating element, but dependent for its action on another body.

The fault which artists found with this school, besides the facts that it gave a hollow timbre to the voice, and made speech unintelligible was that it gave an unnatural expression to the face by the constant aiming upwards of the soft

palate. It had its day, however, and was strongly supported—and still remains in favour though some are now turning from it with undeserved abuse.

I advocate it, of all the one-sided schools surrounding us, if the student must choose among *them*—partly because it is a good beginning for pupils to start with the preparatory work of the Resonator, partly because the result of its training is more pleasant than that of either of the other schools discussed.

As the art of song stands to-day, it has as yet not been possible clearly to define where song ends and noise begins, and the soft palate school has at any rate not overstepped the boundary in such a manner as to render song disagreeable.

CHAPTER XIV

THE RESONANCE SCHOOL

When the soft palate or Pharynx School began to lose its power, and was recognised among scientists and teachers as being deficient, they searched once more desperately for light, but their means were exhausted since school after school had failed to elucidate the mystery and some acknowledged openly that voice-production remained an enigma which it was beyond their power to solve, whilst others were ingenious enough to find a loop-hole through which to escape all difficulty by ignoring song altogether and created the now leading fashionable 'Resonance' school. In this school the Resonator is discussed through speech alone, and the pupils are told to trouble about nothing but simply to speak distinctly, so that song, which is a natural gift, may take care of itself, and be governed by speech.

How compassionately the old Italian masters

would smile on us, if they were here to listen! For they knew only too well that the phonation in perfect speech is song. And not until the day arrives when the less contains the greater will song be the outcome of speech.

This school is worthy of notice not because of its merit, but because of the acknowledgment of absolute ignorance which it must convey to the initiated: and also because it is of great interest to watch how the public will accept absolutely false theories, and even support and applaud them.

To say that song is subordinate to speech, is like saying that the plant is subordinate to the flower it unfolds. The flower is the grace given life by the plant. Speech is the expression carried upon the vibrations of song—that is, it would be if we spoke correctly—phonated correctly!

And what advice do the supporters of the various forms of Resonance school give to help their pupils to govern such speech?

Some guide them by advising them to whisper, that they may get the organ more thoroughly under command by not using it, which is equivalent to a violin-master teaching the violin by not permitting the pupil to put the bow to the strings, but to place his fingers

on them, on the chance of it being right. A whisper makes one involuntarily lift the larynx high, and is, as a rule, only employed when we wish not to be heard by more than the person close to us. A whisper can be penetrating, for example, a stage whisper: but it is then as much, if not more, effort than sound itself, and the escape of air more injurious and weakening to the cords than resistance would have been.

I think this advice needs little or no comment, its weakness is too apparent and will be still further exemplified by the result of its teaching.

Other teachers of the Resonance school concentrate more on the action of the lips and the tongue, and give exercises to get both elastic and supple, and this might prove of value if the exercises were such that they could influence the cause of the evil, but the stretching sideways of the lips until the face is distorted, and the pulling out of the tongue till it reaches the tip of the chin, will rather encourage faults than cure them.

If the tongue is at fault, it will not be controlled by being pulled outwards, but inwards, as the difficulty always lies in the root being too high: a fault which, as I said, can be the most easily obviated through the action of the larynx.

I could give examples of the most absurd cases, but as ridicule is an extremely low art I will resist the temptation. One thing is certain, no one will create song by aiming to their teeth, lips or nose, and nature always revenges herself if we try to alter her regulations.

The term Resonance in itself ought to speak to a certain extent against the school, as it concentrates entirely on the second body. We might just as well think we could expect a beautiful echo to come back to us without first having created a beautiful sound, as to expect Resonance alone to give the beauty to our voice. There are, however, those who teach this school through the medium of expansion and relaxation of the throat, without in particular attracting the attention to any one part of the Resonator, and this work of opening the throat is most excellent and, if supported by correct breathing, would give the only sound foundation for song.

But the Resonance school is by most taught through distinct speech, and this constant aiming forward is apt to close the throat and lift the organ.

And though it holds an excellent point in encouraging clear enunciation, it is a point

with which we could well dispense in our preparatory work in song, as before we want to form our sound into words we must know how to create sound.

First let us know how to play upon our organ, and then give such playing expression; for Psychology is as dependent on Physiology as Physiology will prove to be dependent on Psychology before that which results can deserve the name of Art.

CHAPTER XV

PRACTICAL EXPERIENCE

The difficulty of voice-production is therefore made manifest by the antagonism which exists between the conflicting schools; particularly as all of their advocates hold unflinchingly to their own opinions and will not listen to, or consider those, of their opponents. Now and then the various schools produce good results, as explained before, and the singers who support the different schools add to the confusion.

Each school in turn has been popular, and as we know, "popular opinions on subjects not palpable to sense are often true, but seldom or never the whole truth. They are part of the truth, sometimes a greater, sometimes a smaller part, but exaggerated, distorted, and disjoined from the truths by which they ought to be accompanied and limited."

The only hope is to make an attempt to join

the fragments of truth to form one whole, by getting scientists and teachers to become impersonal, that they may combine their forces to support one great object and recognize each the merits of the other.

Agrippa's fable might be listened to with benefit, for here again elements dependent on one another quarrel and try to be independent of the workings of nature.

I do not think there is any other art in which the "imp of abuse" is more developed; every one speaks too strongly, and it would be a good thing if we realized that "though we sometimes speak strongly because we feel strongly, we more often speak strongly because we do not feel delicately."

I have obtained most of the knowledge I hold by analyzing the works of other men, testing it in argument and trying it in practise. Some of Mill's words were always present with me and I knew I could do no better than follow them, and for the benefit of those who have not learned to realize how carefully it is necessary to observe and listen to the opinions of others, I will repeat them.

"If a human being can make some approach at knowing the whole of a subject, it is by hearing what can be said about it by persons of every variety of opinion, and studying all modes it can be looked at by every character of mind. No wise man ever acquired his wisdom in any mode but this, nor is it in the nature of human intellect to become wise in any other manner."

I have throughout my book avoided extracts and quotations from other works on the voice, because I find this stringing together of other men's minds fatiguing for the reader; but it is not because I ignore them, but because I wished, for the benefit of others, to connect in a simple manner the conclusions I have myself arrived at through years of labour and research. I have studied most works on the voice, and I have listened to many authorities and have been much helped by them, but my study of Nature herself was my best guide, for all remain subordinate to her, who is "the sole mistress of true spirit."

I have believed in many theories, but by testing them have proved them to be fallacies, and my changes of opinion have been looked upon by many as weakness, but all development demands change, for I fully appreciate the fact that "a foolish consistency is the hobgoblin of little minds"

I am to-day as absolutely conscious of the

shortcomings I displayed during the development of my work as I am convinced of the power of the knowledge I now possess. I have derived my opinions greatly from the workings of Nature, and I am always looking to her for guidance. I know full well the danger of believing in my infallibility, but I believe in her infallibility.

All the contradictory *decided* opinions I encountered on every side, whilst I was searching for help and light, stood before me like stone walls hiding the sun, and I learnt to realise "the deep slumber of a decided opinion." And though I know I have a sound foundation for my work, I know also that in all science we can never afford to cease thinking of, or developing, our subject, as we shall never arrive at the end of all that which remains to be known.

I hope, however, that the conclusions I have arrived at, will be of benefit, particularly as I intend still further to explain the manner in which I obtained the practical part of my knowledge by relating my work with, and experience of, the anatomical side of the organ. It is only latterly that a decided movement is being made in the science of voice-production towards the recognition of the necessity of the study of Physiology for the teachers of my profession,

but it is not long ago since it was scoffed at, and that "the foolish masses mocked at those who decided to learn directly from nature instead of consulting her clerks." "I am convinced," says Burke, "that the method of teaching which approaches most nearly to the method of investigation is incomparably the best, since, not content with serving up a few barren and lifeless truths, it leads to the stock on which they grew."

The work which has yielded me the most benefit throughout my research, is the work I have done with my little girl, who, through my teaching of her, guided and helped me to further my knowledge.

At the age of six she suffered, like so many other children, from obstruction of the nasopharynx, and added to this, incipient Phthisis (consumption). She underwent the usual operation and had the growths at the back of her nose removed, but though her condition improved to a certain extent, her chest gave cause for anxiety, and I took her abroad, making up my mind to interrupt all my studies of song and concentrate on the study of Physiology, because, in spite of being a singer, I felt absolutely ignorant of our respiratory organs, and I desired to get acquainted with their workings, *not* be-

cause I wished to solve the secret of the motor element of song, but because I wished to understand the motor element of life.

After two years of concentrated work I had achieved my purpose, and returned with my little girl in perfect health. Day by day I had worked with her till the lungs could stand the costal expansion, and day by day she grew stronger, entirely under my own care. The child had had a weak voice, and never shown any particular inclination to sing, a fact which no doubt sprang from her ill-health. During the years I spent in developing her breathing, her speaking voice underwent a great change in timbre, which led me to investigate the phenomenon, and it did not take me long to realize that the child through want of proper control of breathing had always spoken with the larynx far too high, and that now the action of the muscle had relaxed and opened the throat and contracted the windpipe, and thus lowered the larynx. I then began our work of elocution, training the chill to speak and intone from semitone to semitone till we approached vibrations that were too rapid to be termed "speech," and gradually, without a sign of a break, merged into song. When elocution was mastered, I began our daily

studies of song, with the result that my little girl illustrated my lectures on voice-production at the age of nine. Her scales and trills were under perfect command, and she understood more about the organ and how to handle it, at that age, than I had done after nine years of concentrated study under some of our best European masters.

Doctor Roberts of Reading who had operated on and attended my little girl before I went abroad came to see her, and wrote to me on October 25th, 1899.

"I have found that the most marvellous change has taken place. Tullik's chest is perfectly sound and well-developed, and the expansion on inspiration wonderful in a child of her age. This change I believe to be due entirely to the instruction she has received from you in the correct method of breathing and voice-production. This proves to my mind that in teaching the young to breathe correctly you will do much to prevent and arrest consumption."

Voice production, therefore, ought not to be looked upon or treated in the light manner of the day, as it is a study that will strengthen or weaken life itself.

And it is much to be regretted that no examinations or standards have to be passed before teachers are allowed to practise on the public, as both the ignorant, though well-meaning musician, and the money grasping charlatan often injure the organ. And if loss of voice were the only result it would matter comparatively little, but it may have serious consequences if a weak organ is made to strain beyond its powers.

Most people think that because a man is a musician, he should be able to teach singing, and the strange part is that the musician often thinks so himself, but this is far from being the case, for though a musician may be a good judge of effect in song, he is ignorant of its cause.

A pianist is no more qualified to teach singing than he is to teach the violin. It is greatly this want of recognition of the knowledge required in voice-training that has brought the teaching of singing to such a deplorable state.

CHAPTER XVI

ADVICE TO MOTHERS

ALL those who have attempted to lead or support any new movement will have experienced the uphill, slow, discouraging work of getting the public to listen to and consider fresh theories, and the difficulty is only to be overcome by absolute firmness of purpose. few people exercise their mental faculties in making a choice, and generally are content to be led and to take things for granted without troubling to analyze them. I have for years tried to make my small portion of the world believe that children should be taught breathing and that all schools should have teachers for this purpose, who could at the same time teach sufficient physiology to let us grow up with the understanding of how to take care of our bodies in a proper manner, but the world objects and seems to consider it wrong for us to know anything about our own organism, as if its construction were something, which, with other developments of nature, ought to be hidden from us.

"Song is a lost art," cries the scientist, forgetting to realize that song is dependent on a proper physical development from our earliest days, and that to have a beautiful organ, we must live in such a manner that the organ, like any other part of our body can be developed in perfect health. Almost every second child I meet, is breathing in a manner calculated todestroy the vocal organ which for its proper development is dependent on perfect breathing and a healthy throat. I have spoken to mothers again and again and in all my lectures have advocated that children should be taught singing, not primarily as a means to song, but as a means to health, so that song some day may be developed, but custom, the terrible stumbling block to all human advancement, checkmated me on every side.

Many think it a great wrong that I should permit my little girl to sing, straining and ruining that lovely natural organ! But her song has sprung entirely from my having used voice-production as a means to her physical welfare, and she has through this means alone recovered health, therefore a healthy organ which she plays upon through the knowledge of its workings. Her voice is natural and flexible in every intonation of tone without a shade of force, for the child knows already how to distinguish between song and noise, and understands that the moment the organ is strained the sound which issues will be a noise. To aim at *quality* not *quantity* is the advice I foremost impress upon my pupils, for if the organ is rightly handled, it will daily grow in strength, and give what it has got to give with ease and such training cannot begin too soon.

Sir Morell Mackenzie says, "It is necessary to understand what is meant by training. To put a young child through the vocal athletics which the adult is rightly made to practise would be as ridiculous as setting him to defend the wicket from the "demon bowler." But I can see no objection to his being subjected to a certain amount of vocal discipline as early as the age of five or six, or even younger."

All those who have followed the lives of singers will know that Jenny Lind, Patti, Albani, Patey, Alboni, Catalani and Christine Nilsson were all trained from very early childhood.

"If there is any doubt as to when it is best

to begin the training of the singing voice there can be none I imagine as to commencing the education of the speaking voice. It can hardly be begun too soon; in this way faults of production and articulation can be prevented from the earliest. The Greeks at their period of highest culture were keenly alive to the necessity of this, and would allow no servants near their children but such as spoke correctly.

"When foreign governesses are chosen the English people are most careful that their speech shall be of the best, whilst it remains a matter of no importance that most of the English nurses are absolutely ignorant of their own language."

If I fail in impressing upon mothers the importance of the stridy of voice-production, I trust that I shall not fail in making them realize the necessity of teaching their children correct breathing.

If mothers knew sufficient Physiology they would soon understand how fatal is the tendency in children to breathe incorrectly. The subject is such an important one that I shall in the two following chapters enumerate the evils that spring from wrong breathing.

Round backs, slovenly carriage all come from the same cause: and as a graceful figure is an

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undeniable charm, it is worth being cultivated, set apart from the fact that it gives health. I put it in this way because so many are inclined to regard the matter from this crooked point of view.

If the importance of this simple but great truth were more recognized our lives might be so much more full of song!

CHAPTER XVII

WRONG BREATHING

It has been my endeavour throughout my books to lay stress on the necessity of correct breathing, and that I may not fail to impress upon my readers its full significance I will point out the serious consequences that arise from the neglect of it, in other words, though it involves reiteration, I will specify the ill effects of wrong breathing, which are numerous. if the subject were brought forward by leading authorities with all the importance that it deserves, it would, I feel sure, necessitate a movement towards "breathing" being taught in all our schools by specially qualified teachers. Singing teachers now appointed at schools have as a rule little or no knowledge of the respiratory organs, and it is essential that all those who teach either song or speech should have intimate acquaintance with the workings of

the organs of respiration; that is, the lungs and the whole respiratory passage, which consists of the bronchi, the bronchial tubes, the larynx, the throat, the pharynx, and the natural inhaler the nose. Without this knowledge they cannot distinguish between natural defects and disease, and they might therefore easily strain or harm the organ.

The knowledge of Physiology will show us the dangers of using the voice whilst the elemements are in an unprepared condition, and professionals whose livelihood depends on the use of the voice ought to realise the risk they run in straining a wrongly adjusted instrument. The abused organ will not be able to carry out its functions for long and the result will not be worthy of the name of Art.

I will divide breathing into two distinct divisions and treat their results in two different chapters.

- (1) The inhaling of breath.
- (2) The guarding or control of breath.

I will in this chapter specify the results of the wrong inhalation of breath, and in the following chapter the results of the careless control of breath.

As I have already stated, the nose is the natural inhaler, wherefore the subject of the



obstruction of the nasal passage is one to which too much attention cannot be paid, and few realize the terrible effects such obstruction may lead to.

The nose is almost the most important part of the respiratory organs, as it filters, moistens, and warms the air, preparing it in every way for the lungs.

The mouth, which many believe is given us to breathe through, is but the food passage and an agency in speech. Air that is drawn in through the mouth flows through the respiratory passage and into the lungs in an unprepared condition, because—

Firstly, it is too cold, which is apt to contract the mucous membrane, resulting in catarrh.

Secondly, it is too dry, which irritates the whole respiratory passage, and is likely to bring on coughs.

Thirdly, it is uncleansed, and consequently may carry tubercle and other germs into the lungs.

It is therefore easily understood that by the teaching of correct breathing consumption would become rare, as fresh air, properly prepared, would invigorate and strengthen the lungs. If anyone suggested to us that we should stop washing or leave off airing our rooms we should

all turn away disgusted, yet half of us are daily encouraging uncleanliness in ourselves or in our children by permitting careless breathing, which results in unclean air entering the lungs. If we watched ourselves and our children we could easily control the act of respiration in such a manner that the lungs were invigorated by a constant supply of properly prepared air.

The explanation of the evil is so simple, and so few comparatively are made to understand its importance!

Song is a great charm, but what is it in comparison with health? Yet until we wish to study the art of song, how few of us trouble about correct breathing!

Voice production, that is correct speech and song, is one of our most important sciences, and should be looked upon as an absolutely necessary study, because it demands a healthy organ before it can be achieved.

The failure of voice in public speakers and singers is more often than not rooted either in wrong inhalation or wrong control of breath. All the following troubles may spring from it—

Headaches, Asthma,
Ear-ache, Swollen tonsils,
Catarrh of the larvnx, Swollen glands,

Coughs, Inflamed uvula, Bronchitis, etc.,

And, furthermore, as the blood is greatly affected by the air in our lungs, the digestive organs will suffer, wherefore a general feeling of ill-health often springs from the same cause.

Complete nasal obstruction, caused by polypi on both sides of the nasal passage, will also weaken the whole nervous system and bring on a stupor, caused by the inactivity of the brain, which is likely to follow. The face invariably gets a heavy dull expression, as the wings of the nose fall in and the upper lip is drawn upwards, whilst the lower jaw falls down, that the mouth may be open to carry out the function of inhaler. The irritation of the mucous lining of the vestibules of the nose and upper parts of the pharynx will bring on a flushing that has serious consequences both for the throat, larynx and windpipe.

As we can shut our mouth at will it seems that correct breathing ought to be an easy matter, but unfortunately many are born with an affection of the mucous lining, which is easily increased by impure air or careless breathing from the earliest. A child often starts life with a cold in its head as the change of temperature at its birth is a shock to the

system, and though the slight colds in the head are thought of small consequence, they are often the beginning of the whole ensuing trouble. A baby will quickly form a habit of breathing through the mouth, thereby unfitting the nasal muscles from carrying out their function, wherefore they naturally grow weak, and mouth-breathing becomes a second nature. Children of three or four months show often inclination to obstruction in the nasal passage; and though it need not necessarily lead to complete obstruction, such children will, as a rule, sleep with their mouths open, though they may not breathe through the mouth during the day. Most of us will have experienced the extremely unpleasant feeling of dryness of throat that we sometimes have on waking up in the morning and which springs from the fact that we have lain in an attitude that has caused the partial closing of the nasal passage and forced us to breathe through the mouth.

The irritation that arises from breathing through the mouth is therefore easy to understand and the dryness of throat from which so many public speakers and singers suffer, springs as a rule from the fact that they are all inclined when nervous, to draw sharp short breaths through the mouth. This trouble could easily

be overcome if the speaker or singer would close the mouth firmly and draw in deep breaths in succession through the nose before they begin, and grip the diaphragm firmly, an exercise which all should practise every day, that they might get the better of nervousness through correct breathing.

Palpitation springs often from the same cause—if the lungs were expanded well and the heart were relieved of all pressure, palpitation would cease, unless there were a graver cause for it. In those who have a sound action of the heart, palpitation arises as a rule from uncontrolled breathing.

It is hardly to be believed how comparatively few among us breathe absolutely correctly, how few among us, therefore, are absolutely healthy. All muscles that remain partly inactive must necessarily grow weaker. The dilating valve in the nose ought to move with each inspiration, the air enters something like 20,000 times a day, but if this valve is not in action—that is, if the air is not drawn in through the nose, the narrowest part of the passage will soon get obstructed.

When we realise that song and correct speech are dependent on a healthy organ, and that very few have lived so as to secure, health we can understand that song and speech have small chances of development, and that those who are obliged to use their voices as a means of livelihood can hardly pay enough attention to the necessity of getting the organ healthy that is, getting correct breathing under control.

We hear and see many wonderful advertise-isments about "voice-creation," and the speedy restoration of the tonality of the voice in a short time; but these promises are impossible to carry out, for an injured organ can only be got strong by allowing Nature to act as she is meant to act and this must necessarily take time, though it is wonderful how quick and beneficial are the results if we aid her in her working. Sore throat—clergyman's throat—laryngitis—catarrh asthma, and consumption in its early stages, would all be remedied if through gentle measures Nature were allowed and encouraged to work her own cure: that is, to act according to her own laws.

I am glad to say many movements are being made towards the recognition of the importance of the subject, and that books are now forthcoming which ought to open the eyes of the public to the necessity of correct breathing and voice-training.

The following extracts from the circular

letters of the British Medical Association raised the hope that there might be some practical reform:—

British Medical Association.

429 STRAND, LONDON, W.C., *November* 18th, 1893.

SIR.

I am directed to forward to you herewith copy of Memorial on Voice Training which has been adopted by Council of the British Medical Association, and ordered to be sent out to the Public Schools, the Universities, and other public bodies interested in the question.

I am,

Yours obediently,

FRANCIS FOWKE,

General Secretary

Memorial on Voice Training.

The Council of the British Medical Association, acting on the suggestion of the Section of Laryngology, at the Annual Meeting of the Association, held at Nottingham last year, venture to approach you on the subject of the training of the voice in persons who are, or who

are likely to be, engaged in work which necessitates the frequent use of the voice in reading, in speaking, or in singing.

For some years past it has been matter of common observation among those of the medical profession who practise in diseases of the throat, that clergymen of all denominations, persons engaged in teaching, barristers, singers, etc., are frequently disabled from following their vocation, either for the time or permanently, by affections of the throat, which are *due to improper use of the voice*. Even those with strong throats are not proof against the evils which are produced by this cause; while those whose throats are naturally weak perform their daily work under a constant strain and the fear of breaking down.

Enquiry and observation have taught those who are interested in such matters that a large number of teachers of singing are not themselves acquainted with the best method of using the voice, and are therefore not able to impart it to their pupils; while educational establishments, in which boys are taught and young men are trained for the various Churches, for the Bar, for Teaching, etc., rarely profess to furnish any instruction in the use of the voice, and still more rarely carry out such instruction with the thoroughness it deserves.

Seeing how much distress is occasioned by the lack of this instruction and how much valuable time and suffering might be spared by it, the Council of the British Medical Association venture to beg that you will take this matter into your grave consideration, and, either alone or in concert with the heads of other educational bodies, devise such means as may seem best fitted to remedy what appears to be a grave defect in the later education of many of our youth of both sexes.

This led to the following:—

"DEAR SIR,

Referring to my circular letter of November 18th last, and in reply to your enquiry respecting it, I am directed to inform those Colleges and Schools which have replied to the circular that the Council suggest that one or more of the Resident Teachers of the several Colleges and Schools should receive Instruction on the subject of Voice Training from a properly qualified person.

I am, yours obediently,

FRANCIS FOWKE,

General Secretary.

The second circular was shortly afterwards followed by the circular of the Education Department dealing with the subject of reading.

Extract from circular to Training Colleges and Pupil Teacher Centres, issued by the Education Department, 1897.

"Good Reading is an exercise in voiceeconomy, and voice-economy is useful in all degrees. It is always a saving of physical effort; at the least it is a protection against common forms of throat disease to which those who live by talking are prone; and at the best it is an admirable and health-giving gymnastic. It is a most painful fact that a substantial number of our teachers suffer from more or less developed and recognisable forms of throat disease, which a little exact knowledge and careful practice, in the earlier stages, might have cured, if not avoided. Experiments have satisfactorily shown that even in cases of advanced deterioration, carefully graduated exercises have gone far to mitigate the mischief already done."

The immediate outcome of the Circulars issued by the British Medical Association was the foundation of the society for Physical Voice Training at a meeting held at the Medical Society's Rooms, Bishop Barry in the chair. The Duke of Rutland was elected President, and several Bishops and leading medical men gave their names as Vice-Presidents. This Society is now known by the name of the

"Church Society for Training the Speaking Voice."

It is to be hoped that this Society will be supported, as it is much needed, but it is always difficult and uphill work to get the public to further new movements, and it will, I believe, particularly be so in this case, as the speaking voice is by most looked upon as a gift of nature.

CHAPTER XVIII

DEPORTMENT

Before we can recognise in full the importance of an erect and graceful carriage, it is essential to understand that it is to a great extent the outcome of correct breathing. The want of knowledge of Physiology is again, as a rule, at the root of the evil, and more than half of the trouble existing around us springs from the neglect of the most important muscle in our body—the diaphragm.

The respiratory organs, beginning with the nose, and terminating in the lungs, are entirely under the control of this muscle, which is the central regulator and the controller of life, therefore of our whole body. I have explained the manner in which its actions govern respiration in my chapter on the respiratory organs, and how the action of the abdomen is greatly subordinate to those of the diaphragm. Those

who teach abdominal breathing are reversing the order of things, and make a second body attempt to rule a first.

Life or breath is that upon which all of us *firstly* depend, and the regulation of the abdomen would be correct if we obeyed the laws of Nature The dangers to our system springing from abdominal or wrong breathing may be as great as are the dangers springing from the wrong inhalation of breath, but before it can be realised in a simple manner why abdominal breathing should be injurious, it is essential to understand something about the construction of our body.

It consists of the head, the trunk, and the limbs; the trunk is divided into two; the chest and the abdomen, which are separated by the diaphragm. The limbs of the body do not concern us here, as my aim is to give a correct understanding of breathing. Through the trunk of the body runs the spinal column which is one of the most important parts of our frame; it forms the firm pillar of the skeleton, and consists of thirty-three vertebrae or bones joined together by a very strong substance; it lies close to the back aspect of the body. Each backbone or vertebrae is a kind of ring, the first part of which is solid, and these rings fit above one another so that they form a canal,

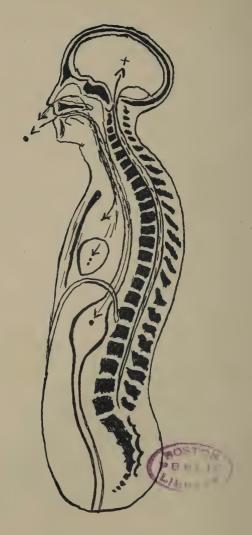


THE HUMAN SKELETON.

a The skull.
b The framework of the chest.
c The pelvis, the framework of the lower part of the abdomen.
d The spinal column.







THE SPINAL COLUMN.

The human body represented as a two-tuped mechanism.

- **≺** The air passage = Life.
- + **←** The brain = Understanding.
- .. ≺── The heart = Feeling.

the spinal canal, through which runs the spinal cord, the most important part of the nervous system. The spinal canal terminates in bones that are connected to the skull, which contains the brain, the latter being continuous with the spinal cord.

The framework of the chest is, as we know, fastened on to the spinal column, which runs down to the pelvis, or framework of the lower part of the abdomen.

The trunk of the body is therefore divided into two distinct parts, the chest and the abdomen, and may be said to be a two-tubed mechanism, one tube running into the lungs, carrying air drawn in by the inhaler, the nose, the other tube running into the stomach carrying food taken in through the mouth.

Many may have knowledge of anatomy and physiology, and yet absolutely fail in carrying this theoretical knowledge into practice; wherefore education on the subject of health is essential. Games and athletics and sport are excellent, but physical development may be dangerous where the respiratory organs are unsound or faulty. "A man may be trained for a foot-race or a boxing-match by methods which, while calculated to develop the special qualities required for the performance of the

feat, may be simply disastrous to the health of the body as a whole. In like manner an unintelligent teacher may seek to develop the voice at the expense of its owner's constitution."

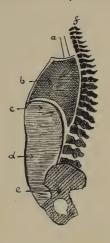
It is therefore necessary to understand what *correct* control of breath is, and what it does, and what incorrect control of breath is, and what it does, that we may be able to find out what is wrong and how to remedy it.

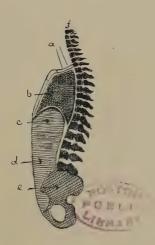
Correct breathing, or costal or diaphragm breathing, gives the greatest expansion to the lungs, and will, through the bundles of the midriff, which are fastened to the spine, help to throw the body into an upright position, by steadying the spinal column. The lungs which take in the oxygen, invigorate the healthy action of the heart, which again stimulates the blood to flow with normal speed through the body, carrying nourishment and force, whilst it also repairs the tissues of the body and carries off the carbonic acid and the waste-products.

It therefore stands to reason that correct breathing stimulates the whole system, influencing both the brain and the digestive organs. Hence correct breathing will give us health if the machinery of our body is in working order.

My personal experiences have guided and helped me throughout my studies and proved

DIAPHRAGM BREATHING (Correct Breathing).



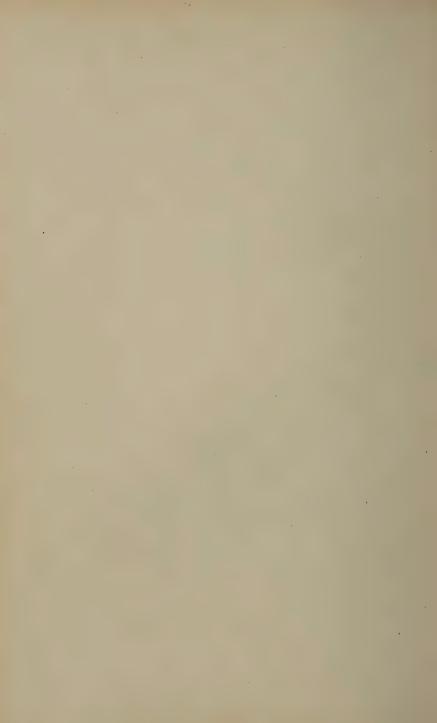


INSPIRATION.

- a The windpipe.b The lungs.c The diaphragm.

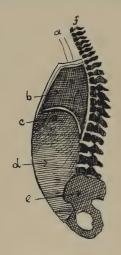
EXPIRATION.

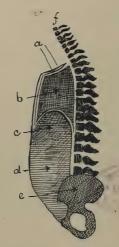
- d The abdomen.
 e The pelvis.
 The spine.





ABDOMINAL BREATHING (Incorrect Breathing).





INSPIRATION.

- a The windpipe.b The lungs.c The diaphragm.

EXPIRATION.

- d The abdomen.
- c The pelvis. f The spine.

of greater value to me than any amount of advice or theoretical knowledge. I was greatly interested in the question of health because of my little girl's illness, and I feel sure that many have the same stimulus, yet so few will really take the trouble to investigate what is meant by Health.

Wrong breathing has, on the other hand, as many fatal results as correct breathing has good ones.

Firstly, it involves unnatural expansion of the abdomen, by relaxing the abdominal muscles which ought to be contracted. This careless carriage in itself encourages enlargement and congestion in the other parts of the abdomen.

The contraction of the diaphragm flattens the abdomen and invigorates all the various muscles that influence the liver and the kidneys. The protrusion of the abdomen disfigures the most perfectly made form, taking away all grace from the figure. When the abdomen is relaxed, the diaphragm arches up and forces the ribs in, flattening the lungs, which under these circumstances do not act in a proper manner, consequently affect the heart, the circulation of the blood and the digestive organs.

The loss of control of the diaphragm will

furthermore encourage curvature of the spinal column, and the displacement of the pelvis.

It is a remarkable fact that very few school-girls hold themselves straight, which springs greatly from wrong breathing and greatly from a careless manner of sitting or walking, thereby dislodging the pelvis, which at once will influence the spinal column. If these matters were taken at an early stage much trouble could be overcome; but comparatively few realise the importance of the matter; if half as much attention were paid to the prevention of ills as is paid to the treatment of them, we should do away with a great many ailments that surround us, for the preservation of health means that our body is kept in the best working order.

"Hundreds of years before Christ the Chinese taught breathing exercises, not perhaps so much as a means of developing their voices (which, in modèrn times, at any rate, are not remarkable for their beauty) but as health-giving and invigorating gymnastics."

The Greeks and Romans were equally particular in the training of the body, which they held in the highest esteem almost amounting to worship.

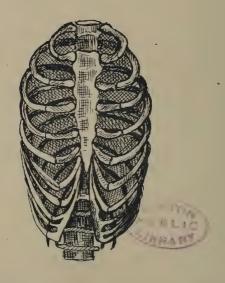
The amount of attention the body gets among





SHAPE OF THE FRAMEWORK OF THE CHEST FOR NATURAL OR CORRECT BREATHING.





Shape of the Framework from both Tight Lacing or Wrong Breathing.

women in our modern days, does not, as a rule result from anxiety as to health, but as a means to a good carriage, but unfortunately "a good figure" means with so many a tiny waist and a small expansion across the ribs. I insert a diagram on the next page to show how the frame of the chest ought to be, and how it often is, through compression.

The effect on the lungs and on the heart that arises from such pressure can therefore be as easily understood as can the consequences to the whole system that of necessity must follow this compression.

I have for years tried to design corsets and belts for my pupils which could give them the necessary support yet absolute freedom across the ribs, and I am glad to find that my last corset and my belt give in every way the needed support and freedom to the body.

Everyone should do a certain amount of exercises every day to encourage the expansion of the chest, thereby strengthening the whole system through physical culture, but be it always understood, that such exercises should be done without any strain or fatigue, as they are intended to promote normal health, not an abnormal muscular development of the limbs.

Many of the exercises now given are too

much of a strain, and inevitably defeat their own object, and may even be dangerous; wherefore some knowledge of the elementary laws of life and health is indispensable to those who take it upon themselves to instruct others in the training of the body.

The best exercises are always those which are taken in the purest air, and which invigorate

without giving any fatigue.

The Swedish and Danish people have done much in Health Culture, and their excellent system, I am glad to say, is gaining ground all over Europe, and if the work which some of these movements have stimulated, develops in the manner we have every reason to hope, it will lay the fundamental basis for song and elocution, as both are absolutely dependent upon health. As Dr. Aiken says in his book on the voice:—

"What we really want is a more definite understanding between the scientific and artistic representatives, which would serve as a foundation for all methods—some clearly defined physiological basis upon which singers and speakers may ground the production of their voices without danger of ruining them . . . There can be no doubt that the possession of a voice depends upon the formation of the organs in the body . . . Considering the great import-

ance of the voice in speaking, reading, preaching, declaiming or pronouncing foreign languages, it may justly be regarded as a necessary part of education to go through a certain amount of drudgery to attain some improvement in these, even when singing is not contemplated."

CHAPTER XIX

ADVICE TO SINGERS

ALL who promote new theories have, as a rule, experienced the difficulty of getting a proper hearing, and, even if they get one, will remain as far from their goal as ever, for they will generally find that instead of influencing the public in favour of their views, they have but laid themselves open to abuse.

And it must necessarily be so if the theories they bring forward are advanced, for if the public were capable of understanding them at once, it would know as much almost as the promoters themselves.

All that which is the outcome of serious research will be looked upon sceptically until it is proved, except by a few who have sufficient knowledge to judge of its validity.

I soon recovered from my disappointment when I realised that I had made comparatively

little impression upon the public by my lectures, and set to work again with double zest hoping to prove my theories in practice, for even the most prejudiced must consider statements that are supported by evidence.

And this is my reason for not writing my little book till now, trusting that students and teachers alike will gain confidence in advice which has stood its test in practice, for, at the time of the publication of my book I will put forward work which I hope may be recognized.

My advice to singers or speakers will therefore, I trust, be listened to and be of benefit.

The first thing essential for all students is to realise that a large range of voice is not necessary for success, but that before *all* they must study pure quality, and that such quality of voice will only be obtained when there exists no force or strain in the production of tone.

They must realise absolutely what constitutes correct breathing and what the control of breathing will do. A deep breath should always be taken through the nose before beginning to sing and this breath must be guarded in such a manner that half breaths taken through the mouth will supply sufficient air throughout continued phrases of the song.

Another deep inhalation should be taken each

time an opportunity occurs, but this deep mode of inhalation must never be exercised in such manner as to hamper or interrupt the phrasing.

This should be thoroughly understood before the students practise much upon the organ, and they must further take care that the resonator is in such a condition as to yield easily to its proper regulator, the larynx, which, however, will not succeed in getting the muscles under control if the soft palate or tonsils are inflamed.

Regard the organ as an instrument the elements of which must be treated separately before they will act in concord, and do not think that this practical treatment of the voice, will in any way destroy artistic development, but that, far from it, it will give the only satisfactory basis whereupon afterwards to develop art.

Realize that all tones are obtained by friction, and be sure of how to control the resistance through control of breathing. Avoid extremes in practising, and strengthen first the part of your voice which your speech most likely has weakened, and try, furthermore, to strengthen song by making it your nature to speak with a lowered larynx, in other words with an open throat.

Begin always by practising softly, and permit of *no* expansion till you have conquered the

sotto voce which takes the most control and therefore commands expansion of tone. To begin by so-termed "full attack," is force. Power will and must come by correct handling of the organ, if power is there.

Contraltos, mezzo-sopranos, and sopranos, should all practise according to the same rule that is: first to develop their medium, for the range of any voice depends entirely upon the elasticity of the cords, and should not be much exercised in its extremes till the voice is somewhat under control. Because an alto may go higher than a mezzo-soprano or a soprano less high than a mezzo, they must not be led into the popular error of believing that they are what their range indicates. To sing more or less high does not necessarily indicate the kind of voice. I know altos who take high notes with ease and mezzos who have comparatively poor height. The thickness of the cords is the cause of the timbre by which a voice is judged, whilst the elasticity or quality of the cords determines the range. I mention this because voices are as a rule judged by their compass, hence the mezzo is often taken for an alto because she can not sing high—which only proves that she has poor quality of cords or uses a wrong method.

Contraltos and dramatic sopranos are the rarest voices, though one hears of many of them, but the contraltos are as a rule in quality nothing but altos or mezzos, called contraltos because they cannot sing high notes. The confusion in this is great, and few masters appear to have the knowledge of how to judge what a voice really is.

I have myself been told by different masters that I was an alto, a mezzo, and a soprano, and there are many professionals who remain in doubt as to the true quality of their voices till the end of their career, taxing their organ by using it beyond its natural compass. These mistakes spring as a rule from force, for it is almost impossible to mistake the true quality of a voice if the organ is properly handled.

As regards speech it should be added to song as it is the finish of song, and hence can never be looked upon as its regulator.

Perfect phrasing must be carefully studied that the poem loses none of its significance.

Be careful in the choice of a master, and believe in no one who says he can create a voice, which is absurd, for the best can but develop, by an excellent method, what is there, just as inferior masters by wrong methods may ruin what is there. The more one has to deal practically with the voice, the more careful and loving one becomes in one's treatment of it and the more one hesitates in one's promises and beliefs in great results.

Take care of your voices by not overworking them, and remember that the greatest power to be exercised in the control of the voice is "sweet gentleness": that is by relaxation of the muscles in the throat and not by force or depression of the larynx.

CHAPTER XX

OPINIONS OF VARIOUS WRITERS

I had intended not to confuse my readers by references to all the various opinions on what kind of instrument the vocal organ is, but as many already may have conceived ideas of its resemblance to other instruments, I think it will prove of benefit to quote some of the theories stated by writers on the voice.

I feel sure that the variety of opinions will go far towards convincing my readers that the voice has no rival, as most of our great authorities agree, but is the most perfect, the most wonderful, of all instruments. An instrument which it is essential we should study in itself, through the aid of anatomical and physical science.

Comparisons can be of great use and will help as long as we do not confuse the laws of the various instruments, but judge by the true cause of things and not by sensations or effects.

The late Sir Morell Mackenzie says:—The larynx is a musical instrument unique in construction, which cannot, strictly speaking, be classed with any other sound-producing apparatus. It bears a close resemblance, however, to the so-called reed instruments, though differing from them in several important points. Reeds are of different kinds, but the essential feature in all is that they break up a continuous current of air into a series of jets or puffs. Two chief varieties of reed are used in the construction of musical instruments. One consists of a thin plate or "tongue" of metal or wood, one end of which is fixed, whilst the other extremity hangs free in the cavity of a tube, or partly covers an opening after the manner of a valve. The action of such a reed when the loose end or edge is set in motion may be compared to that of a pendulum oscillating about a fixed point. When a blast of air is driven along the pipe it strikes the reed, throwing it upwards a certain distance, the tongue then returns by virtue of its elasticity, to its former position, when it is again pushed up and so on; in other words, the reed is thrown into vibrations, and a sound is produced of a pitch corresponding to the length of the vibrating body. The longer the reed the deeper the note and vice versa.

Tongues of this kind may be either single, as in the clarionet, or double, as in the hautboy. Another class of reed consists of plates or disks, which fit into or cover an opening in a tube, without however, being in actual contact with the edges of the aperture which they close. A familiar example of this arrangement is seen in the tongues of a concertina. The vocal reeds do no not resemble either of the kinds just described. They are elastic membranes which must be stretched between their fixed points of attachment before they can be made to vibrate. This is effected by the action of the various muscles acting on the cords. And the degree of tension can be altered, and the vibrating element lengthened or shortened at will, so that one cord serves the purpose of many reeds of different sizes, a triumph of economy of material combined with perfection of mechanism, to which there is nothing comparable in any musical instrument " made with hands."

Helmholtz says, as already quoted before: "that the vocal cords have the advantage over all artificially constructed tongues of allowing the width of their slit, their tension and even their form to be altered at pleasure with extraordinary rapidity and certainty, at the same time that the resonant tube formed by the

opening of the mouth admits of much variety of form, so that many more qualities of tone can be thus produced than on any instrument of artificial "construction." And on page 97, (Sensation of tone) "Only two kinds of membranous tongues have to be considered as musical instruments: the human lips in brass instruments, and the human larynx in singing."

Dr. Aikin says: "The reed of the membranous variety, of which the vocal cords are an example, is a mechanism for producing vibrations in the air, and the vibrations of its solid substance are comparatively inaudible. It is important to make this point quite clear. The solid substance of the cords certainly does vibrate, and produces a note identical in pitch with that of the air stream; but it is so much feebler than the powerful note imparted to the stream of air by alternately opening and closing the passage, that it may practically be disregarded.

"The pitch of the note is regulated by the tension of the vocal cords, and there is a special group of muscles for this purpose, which by tightening or relaxing the cords can maintain any rate of vibration within the compass of the voice.

"Thus we see that the cords are of the nature

of a reed, are a powerful sound organ, and determine the pitch of the vocal note."

Lennox Browne and Emil Behnke say: "The reed theory is the one most generally accepted by modern writers, and so far as the actual production of the original tones of the voice is concerned it is absolutely correct, because the vocal ligaments cut up the column of air passing between them into a quick and regular succession of puffs, just the same as reeds. If nothing else were required to prove the case, the human voice would undoubtedly have to be considered a reed instrument". but "the human voice, the original action of the vocal ligaments notwithstanding, is in its entirety no more a reed instrument than a flute, pipe or a string instrument."

(Reprinted from the "Musical Courier," by kind permission of the editor) Floyd Muckey,

M.D., C.M., says:

The voice is always a complex tone. This fact at once excludes it from the class of flute and organ pipe instruments, as these always produce simple tones. The voice, then, must either be a string or a reed instrument, both of which produce complex tones. In order to decide whether the voice is a string or a reed instrument we must know something of the

nature of vibrators or tone originators. Any substance to act as a vibrator must be elastic: a certain amount of rigidity is essential to elasticity, therefore every vibrator must possess rigidity. A reed being free at one end must have inherent rigidity; therefore reeds are constructed of such materials as metal, wood, and ivory. A string, on the other hand, has not this inherent rigidity, and cannot be made to vibrate rapidly enough to produce tone without the application of tension. Animal tissues, like the vocal cords, are much less rigid before than after death. But even the cord taken from a cadaver has very little rigidity, and it cannot be made to vibrate and produce tone without the application of tension.

A reed, then, must have rigidity without tension, because the reed being free at one end there is no possible way of tensing it. On the other hand, a membrane has very little inherent rigidity; therefore such a thing as "membranous reed" cannot exist except in the imagination of an irresponsible mind. However, membrane can be made rigid by means of tension, but tension can only be attained where there are attachments at both ends, and this is the condition of the vocal cord, therefore, the vocal apparatus is a stringed instrument. A funda-

mental principal accepted by all physicists is that sounding reeds and tension are incompatible, sounding strings and tension are inseparable. This one fact ought to settle the question as to whether the vocal cords act as strings or as reeds.

There is, however, other evidence in favour of the string theory which is just as conclusive as the foregoing. The partial tones of any instrument are produced by segmentation of the vibrator. A string, for example, having the same conditions at each end will vibrate in equal segments, while the reed, being free at one end, will break up into unequal segments. For this reason, the partial tones of the reed will be entirely different from those of the string. If the vocal cord vibrates after the manner of the reed, it certainly will have the same series of partial tones as the reed. If it vibrates like a string, it will have the partial tones of the string. Upon investigation we find that the vocal cords produce precisely the same series of partial tones as the string, and therefore the vocal apparatus must be a stringed instrument. We find that there are five overtones in the voice before we come to the first overtone of the reed. If the voice is a reed instrument, where do these five overtones come from? We never by any chance find the overtones of the reed in the voice; therefore the statement that the vocal cords are reeds cannot be true.

This will be more fully explained when we come to consider quality. Having decided that the vocal cords are strings, it then becomes important to know what the laws are which regulate the pitch of a string, because these laws must be applicable to the regulation of the pitch of the vocal cords.

There are three things which determine the pitch of a string, and these are length, weight, and tension: the shorter the string the higher the pitch: the lighter the string the higher the pitch: the more tension on the string the higher the pitch. Lessening the length of a string one half raises the pitch one octave; lessening the weight of the string one half raises the pitch an octave; while we must quadruple the pulling force to raise the pitch an octave by increased tension. It is very important to thoroughly understand these laws of vibrating strings, because it is the lack of their application to the vocal cords which causes a great deal of the straining of the intrinsic muscles and the ill-effects which follow."

Hullah says: "The vox humana of the

Divine Artificer is an incomparably more beautiful instrument than any of its compeers. Fearfully and wonderfully is it made. Not only is its mechanism more intricate, not only are its component parts more numerous and delicate than those of any artificial organ, but the action of these is complicated by a condition from which every other instrument is free. The instrumental performer has merely to play; the vocal performer has not merely to play; but to say—and both at the same instant . . . There is no saying without (some) singing: that which is effectively and agreeably said must be (partially) sung. 'Est in dicendo etiam quidam cantus obscurior.'" To this subtle music of speech, we may almost apply the words of Portia:-

> "It droppeth as the gentle rain from Heaven Upon the place beneath: it is twice blessed— It blesseth him that gives and him that takes."

Dr. J. S. Bristowe, F.R.S., says: "The larynx is, therefore, not a stringed instrument in the usual sense of the term." Further on "It is clear that the larynx, if not a true reed instrument, has at any rate very special relations to it. Let us consider now, with particular reference to the above remarks, how the larynx acts in the production of sound. Whenever

we are about to speak or sing the vocal cords are made more or less tense, and brought into close opposition; they touch one another in their whole length and the space between them is obliterated. Then with more or less force. through the agency of the muscles of expiration, we drive the air accumulated in the lungs outwards along the bronchial tubes and trachea to the larynx and through the rima glottidis, whence it passes outwards to the nose and mouth. The forcible transmission of air, between the closely approximated and tense vocal cords throws these latter into synchronous vibration, and determines the passage of the air, not in a continuous stream, but in a series of jets or puffs, which correspond in frequency to their vibrations. These puffs are ample or the reverse, according as the vibrations of the chords are ample or the reverse; and have impresed upon them all those varieties of form due to the presence of secondary undulations or harmonies, which attend the vibrations of the cords themselves. So far it is clear that we have a reed instrument to deal with; but it is a a reed instrument, in which, in place of a vibrating tongue placed within a narrow chink, we have two vibrating tongues or bands bounding such an orifice. The chief peculiarity of the

reed here, however, is, that in the main it obeys the laws of strings and determines the notes of the voice in accordance with these laws."

Dr. Witkowski says, in his book of "Voice and Speech": "Physiologists are also quite at issue when they endeavour to determine what kind of instrument the vocal organ resembles: indeed Galien compares it to a flute, Magendi to a hautboy, Despiney to a trombone, Diday to a hunting-horn, Savart to a bird-catcher's call, Biot to an organ-pipe, Malgaigne to the little instrument used by the exhibitors of "Punch" and Ferrein to a spinet or harpsichord. The last named compared the lips of the glottis to the strings of a violin; hence was given the name vocal cords, which they have since retained."

Charles Lunn says: "I have gone for analogy to the song-birds, for these are constant living examples of right voice-production as contrasted with human error. As regards science, the whole principle of the natural physics of voice must have been revealed to me when a boy of fifteen, studying ornithology in its best school—the school of Nature.

The superior larynx (A) of birds is situated at the base of the tongue, and its function is to rule, measure, or suspend the escaping

breath, whether voiced or unvoiced; it answers to the false cords in man.



[From Gould's Drawing of a Sedge Warbler.].

The superior larynx (A) of these perfect voice producers has solely to do with the natural physics of voice, while inferior larynx (C), which is pushed down into the chest, has solely the musical part, not the resisting part of the work. The corresponding part to C in man is the true cords. The space (B) between A and C in birds is seen to swell in response to the power of voice. This is owing to varying degrees of compression of the air, and it shows by its bulge the backward push in true voice-production. Its corresponding part in man is the ventricles. Dr. Lardner nearly got the truth when he wrote: 'The drum itself is the organ by

which the intensity of the sound is increased and is analagous to the laryngeal ventricles of mammifers.' The greater volume and intensity found in the voice of a bird in comparison with that of man, taking respective sizes into consideration, is owing to the greater proportional space between the top part of the instrument and the lower part. It is a self-acting instrument, obedient within its limitations to the will.

A thrush perched at the top of an ash-tree in my garden begins pouring out its full ecstacy of song at daybreak, and, with slight intervals tor refreshment, ends at sunset. This will go on for two months or so, without the slightest appearance of fatigue or the slightest sign of loss of tone in voice.

This is the mode of voice-production that in the following treatise I have endeavoured to induce in human beings, and define its cause."

Excellent though *some* of these comparisons are, I feel sure my readers will agree with me that it would be best to start out on our research without being hampered by the belief that our organ *is a* reed *or* a string instrument, neither are we birds.

[&]quot;Prize that which you hold For the value it bears in itself—"

CONCLUSION

I have but little to add to my book, except that I hope I have expressed myself so clearly that I have succeeded in giving that which it was my endeavour to give:—a practical aid to health, speech and song.

My experience of the voice is great and my sincerity in wishing to help is greater still.

I am a singer and know the infinite difficulties of my art. I therefore trust that that which proves valid in my work will be of service to some, and my errors to others by stimulating further investigation.

I shall undoubtedly be contemptuously termed by some "an emperic," but empericism is the promoting power of all modern science and philosophy, though it also may be the cloak of the charlatan. But whatever it is, let all those who step forward be heard, for I wish in conclusion once more to impress upon you that if they are not given a hearing and they are right, "the public is deprived of the opportunity of exchanging error for truth: if wrong, it loses what is almost as great a benefit, the clearer perception and livelier impression of truth produced by its collision with error."

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